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ESTIMATIONS OF METABOLISM IN ITS RELATION TO DISEASE.[1]

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Food provides the human organism with fuel, the combustion of which constitutes in large measure the process of body metabolism. The amounts of digestible carbohydrate, protein and fat ingested determine the heat and energy value of the food. This value is expressed in terms of calories.

Each organism requires food of a certain caloric value to carry out a basal metabolism necessary to maintain life. The conditions which must obtain, in order that a metabolism may be regarded as basal are:

1. A fasting period of at least twelve hours' duration.
2. A period of inactivity culminating in complete muscular and mental relaxation of twenty minutes' duration.
3. A normal temperature.

[1] Read at a meeting of the New South Wales Branch of the British Medical Association on June 25, 1925.

The basal production of heat is influenced by many factors, the most important being size, age and sex. In order to make results comparable, certain standards have been introduced,[1] the most widely adopted being those established by Delafield Du Bois and Eugene Du Bois working in the Russel Sage Institute of Pathology, New York. Heat production is expressed by them in terms of calories per square metre of body surface per hour and a curve of normal figures for age and sex has been worked out (see Table I.). There is a remarkable constancy in heat production under these conditions, both in different normal individuals of same sex or in the same normal individual at different times.[2] This is apparently due to the fact that the surface area is proportional to the amount of active protoplasmic tissue in the organism.[3] The basal metabolic rate is the term used to express the percentage variation of heat production per square metre of body surface per hour from the normal standards for age and sex.

METHODS OF MEASURING HEAT PRODUCTION.

The heat produced by an organism may be measured[4] by (1) direct calorimetry in which the actual amount of heat produced is measured in a calorimeter or by (2) indirect calorimetry in which

the production of carbon dioxide or consumption of oxygen is ascertained over a given time and the heat value calculated. This is the method used clinically. There are many different forms of apparatus for this purpose,[5] but for reliable results the Douglas bag or Tissot gasometer for collecting the expired air and Haldane's gas analysis apparatus for determining its composition are probably the most reliable.[6] Briefly the method is as follows:

After twelve hours in bed without food the subject lies perfectly still for twenty minutes. The mouthpiece is then adjusted, a clip applied to the nose and by means of valves and tubing the respiratory cycle causes a current of air to be inspired from the open and expired into the Douglas bag. The expired air is collected for ten minutes and is thoroughly mixed by kneading the bag. Samples are taken and the percentage composition of carbon dioxide and oxygen is determined in Haldane's apparatus and the total volume of air in the bag measured through a gasometer. The total volume of carbon dioxide and oxygen can then be calculated, the respiratory quotient $= \frac{\text{Percentage } CO_2 \text{ produced}}{\text{Percentage } O_2 \text{ consumed}}$ is determined and from this the caloric value of each litre of oxygen is ascertained. Thence the total heat production and heat production per square metre of body surface per hour are worked out. The percentage variation from the normal for age and sex gives the basal metabolic rate. Variations of ± 10% are considered within normal limits.

Male, aged thirty-five years; height 172 centimetres; weight 71 kilograms.

Pulse rate per minute 58 before; 58 after experiment.

Respiration rate per minute 14 before; 10 after experiment.

Temperature of sample 16° C.; barometer 776 millimetres; time ten minutes.

Volume of air breathed 51.5 litres.

Volume of samples for analyses: 19.928 litres.
Volume of carbon dioxide in sample: 0.678 litre.
Volume of oxygen in sample: 3.322 litres.

Carbon dioxide in sample 3.45%; oxygen in sample 16.66%.

Volume of air breathed corrected for temperature and pressure:

$$51.50 \times 0.944 = 48.62 \text{ litres.}$$

Volume of carbon dioxide:

$$48.61 \times \frac{3.45 - 0.03}{100} = 1.66 \text{ litres}$$

Apparent respiratory quotient:

$$\frac{3.45 - 0.03}{20.93 - 16.66} = 0.8 \text{ litre}$$

True respiratory quotient = 0.76 (from table).

Volume of oxygen $= \frac{CO_2}{RQ} = 2.18$ litres or 0.218 litre per minute.

Calories per minute $= 0.218 \times 4.752 = 1.04$.

Surface area = 1.778 square metres.

Calories per square metre per minute $= \frac{1.04}{1.77} = 0.59$ or 35.4 per hour.

Normal for age and sex = 39.5 per hour.

Difference = — 4.1.

Difference *per centum*, that is basal metabolic rate = — 10.4%.

The Influence of Certain Normal Conditions on Heat Production.

Seasons of the Year.

It has been shown that the time of year and external temperature do not affect the level of heat production to any great extent.[7] We adapt ourselves to our environment by regulating the amount of heat loss involuntarily by peripheral changes in circulation and voluntarily by the clothes we wear and by changing the temperature of our houses.

Menstruation.

Most experimenters have found no change during normal menstruation.[8] However, Du Bois says: "The subject is not yet settled, but it seems probable that menstruation causes a change in some women and not in others."

Pregnancy.

It is generally agreed that the metabolism during pregnancy is the sum of that of the mother and fœtus and that there is no variation in the mother.[9]

Sex.

The female metabolism tends to be about 7% lower than the male at all ages. The reason for this is unknown. The female organism is apparently a more efficient machine.[10]

Age.

The basal metabolism is greatest between the ages of one and two years and then decreases progressively. It is almost constant between the ages of twenty and sixty.

Before the changes of metabolism in disease are discussed a few physiological facts may be considered. There is a constant minimal loss of nitrogen from the body even in starvation. This nitrogen minimum has been most accurately determined by C. J. Martin and R. Robison, who found the daily loss to be between 0.055 and 0.057 grammes per kilogram of body weight. This minimal protein metabolism represents the "wear and tear of body protein"[11] and is generally made good by food protein. When protein food is ample, the minimal excretion is exceeded, but so long as nitrogen intake and output balance, the body is said to be in nitrogenous equilibrium.[12] In health the organism tends to have a "positive balance," that is we tend to ingest more nitrogen than we excrete.

When food is given to a fasting animal, there is an increase in heat production. This increase is greatest in protein feeding and may increase the metabolism by 50%. Proteins are considered to exert this effect by the circulation of amino acids stimulating metabolism.[13] This stimulation of metabolism by food has been named by Rubner the specific dynamic action of foodstuffs. The clinical importance of this physiological fact will be well illustrated in considering the metabolism in fever. The respiratory quotient is the amount of carbon dioxide produced, divided by the amount of oxygen from the air consumed. It varies with the type of food combusted. When carbohydrates which are rich in oxygen, are

TABLE I.—NORMAL STANDARDS IN CALORIES PER SQUARE METRE PER HOUR (DU BOIS).

Sex.	Age.																
	10	11	12	13	14	15	16	17	18	19	20	20–30	30–40	40–50	50–60	60–70	70–80
Male	52.5	51.5	52	52.5	48	46	44	43	42.5	41	40	39.5	39.5	38.5	37.5	36.5	35.5
Female	49.5	48.5	49	49.5	45	43	41	40	39.5	38	37	37	36.5	36	35	34	33

burnt, the respiratory quotient is unity; when protein is burnt the respiratory quotient is 0.801 and when fat is combusted the respiratory quotient is 0.703. A molecule of fat contains very little oxygen. From this it follows that when a litre of oxygen is burnt with carbohydrate, it has a greater heat value than when burnt with fat or protein. From the respiratory quotient under basal conditions the percentage of each foodstuff burnt can be ascertained and we can thus find the value of each litre of oxygen from any respiratory quotient.

METABOLISM IN DISEASE.

Metabolism in Undernutrition.

In underfeeding and in starvation there is a great reduction in total metabolism. This is well shown by the studies of Benedict[14] on Mr. A. Levanzin who fasted for thirty-one days, taking only distilled water. The metabolism of this person dropped from 1.12 calories at the beginning of the fast to 0.88 calories per kilogram per hour at the end of the twenty-first day of starvation, that is a drop of 21.4%. This is important in considering the metabolism of greatly wasted diabetics when calculating maintenance diets from weight.

Overnutrition and Obesity.

Apart from the specific dynamic action of increased amount of food, no change has been discovered in the heat metabolism from overeating, but the question has not yet been definitely settled; obesity *per se* does not seem to affect heat production.

Metabolism in Disorders of the Endocrine Glands.

The Thyreoid Gland.

The estimation of the metabolism in disorders of the thyreoid aparatus is clinically more important than in any other disease, because the hormone of the thyreoid seems to control the rate of cell metabolism. Magnus Levy[15] in 1895 first demonstrated the important rôle that the secretion of the thyreoid gland played in metabolism. It is now generally agreed that hypersecretion of the thyreoid causes an increase in metabolism and hyposecretion a decrease; the increase may reach 100% above and the decrease 50% below the normal requirements. Boothby and Sandiford have tabulated the changes in metabolic rates in 6,197 cases of thyreoid disorders at the Mayo Clinic (see Table II.).

The one hundred and ninety patients with thyreoid diseases studied during my stay at St. Thomas's Hospital in London tabulated similarly follow (see Table III.).

In considering the degree of severity from estimations of the basal metabolic rate in thyreoid disorders in hyperthyreoidism + 15% to + 25% may be considered mild, + 25% to + 35% may be considered moderate, + 35% to + 50% may be considered moderately severe, above 50% may be considered severe.

In myxœdema — 15% to — 25% may be considered moderate, below — 25% may be considered severe.

TABLE II.—COMPARISON OF THE BASAL METABOLIC RATE IN 6,197 PATIENTS WITH THYREOID DISORDERS (BOOTHBY).

Diagnosis.	Number of Patients.	Above + 20.	+ 20 to + 16.	+ 20 to + 11.	+ 15 to + 11.	Normal + 10 to — 10.	— 11 to — 15.	— 11 to — 20.	— 16 to — 20.	Below — 20.
Exophthalmic goitre	2,569	93	..	5	..	2	..	..	..	..
Recurrent exophthalmic goitre	320	90	6	..	2	2	..	..	..	..
Adenoma with hyperthyreoidism	1,425	68	..	32	..	..	..	..	..	..
Recurrent adenoma with hyperthyreoidism	46	57	17	..	26	..	..	..	..	..
Adenoma without hyperthyreoidism	1,111	..	..	..	..	100	..	..	..	..
Recurrent adenoma without hyperthyreoidism ..	62	..	..	..	..	90	8	..	2	..
Colloid goitre	328	..	3	..	10	79	6	..	1	1
Myxœdema	102	..	..	..	..	..	..	20	..	80
Postoperative myxœdema	41	..	..	..	..	..	..	46	..	54
Questionable hypothyreoidism	86	..	..	..	..	9	..	61	..	30
Cretinism	28	..	..	..	..	21	..	32	..	47
Thyreoiditis	34	32	..	12	..	35	..	12	..	9
Malignant thyreoid	45	22	..	9	..	67	..	..	..	2
Total	6,197	..	..	..	..	..	..	..	..	..

TABLE III.

Disease.	Number of Patents.	Basal Metabolic Rates.				
		Above + 20%.	Between + 10 and + 20%.	Between — 5 and + 10%	Between — 15 and — 5%	Below — 15%.
Exophthalmic goitre	112	97%	3%	..	..	..
Recurrent exophthalmic goitre	7	100%	..	..	..	..
Adenoma with hyperthyreoidism	5	60%	40%	..	..	..
Adenoma with normal metabolism	12	..	..	100%	..	..
Adenoma with hypothyreoidism	7	..	..	..	72%	28%
Myxœdema	19	..	..	..	25%	75%
Cretinism and myxinfantilism	9	..	..	..	23%	77%
Colloid goitre	19	..	16%	57%	21%	..

The degree of thyreoid stimulation and the extent of the nervous phenomena are by no means parallel and from the basal metabolic rate alone no true information as to how ill the patient is, can be obtained. On the other hand the determination of the basal metabolism may in an individual case be of great importance. The following are in this respect illustrative cases.

CASE I.—J.Y., a male, *ætatis* sixteen years, had had definite chorea four years previously, for which he had been treated on and off as an in-patient for two years. Since then he had been treated as an out-patient for muscular twitchings and nervousness. He had been referred to the Clinical Unit with the diagnosis of possible hyperthyreoidism. Physically there was nothing definitely abnormal. He was of normal height, but ten kilograms underweight. The isthmus of the thyreoid was palpable and there was a humming *bruit* at the right clavicular angle. The basal metabolic rate was — 18%. On thyreoid extract he gained 4.5 kilograms in one month and the general improvement was evident.

CASE II.—C.T., a male, *ætatis* forty-five years, had been referred with the diagnosis neurasthenia and possible hyperthyreoidism. He had lost weight and felt very ill. He seemed very depressed and neurasthenic. On examination no swelling in the neck was detected and no *bruit*. There was mild exophthalmos, but no other ocular signs. There was a definite tremor which inclined to be coarse; he complained of tachycardia. The basal metabolic rate was + 28%. We were so surprised that the test was repeated, but the result was confirmed.

CASE III.—E.D., a female, *ætatis* twenty-four years, had hemithyreoidectomy for symptomless enlargement of thyreoid gland at the onset of puberty. Since then she had been quite well, but had developed a nodular enlargement of gland and had been advised in Queensland to have it removed. She had consulted a physician in Sydney who had had the basal metabolic rate estimated. The result was — 4.4%.

In cases of adenoma of the thyreoid gland considerable assistance is afforded to the surgeon as to how much thyreoid tissue should be removed. Adenomata seem able to affect the production of thyroxin in several ways.

(1) The tumour itself may produce the hormone or by its presence stimulate the thyreoid gland and in either case a condition of hyperthyreoidism may arise. Nearly 60% of Boothby's patients had raised metabolic rates. On removal of such adenomata the thyreoid generally returns to normal.

CASE IV.—A.T., a female, *ætatis* thirty-eight years, had a small adenoma of the isthmus. Her basal metabolic rate was + 23.3%. Five weeks after removal her basal metabolic rate was + 3.6%.

(2) In other cases the adenoma seems to depress the thyreoid activity and on its removal the gland tends to return to normal.

CASE V.—M.B., a female, *ætatis* fifty-five years, had had an adenoma of the isthmus of two years' duration, increasing in size. Her basal metabolic rate was — 10.9%. Four months after operation the basal metabolic rate was + 2.9%.

(3) In many cases the adenoma does not affect the production of thyroxin; this occurred in about 35% of Boothby's patients.

Iodine administration, however, may precipitate hyperthyreoidism in adenomatous thyreoids, as pointed out by the elder Kocher many years ago, and recently shown by Plummer and Boothby who warn against giving iodine to patients with adenomata.[16]

A too liberal removal of thyreoid tissue with the adenoma will determine the onset of myxœdema; the production of some degree of hypothyreoidism is indeed not uncommon.

CASE VI.—D.B., a female, *ætatis* eleven years, suffered from a condition diagnosed as proliferating adenomatous goitre. Her basal metabolic rate before operation was + 0.3%. Six months later aphonia and a subjective feeling of cold appeared and she gained in weight. Her basal metabolic rate was — 25%.

CASE VII.—A.M., a female, *ætatis* fifty-five years, suffered from a condition diagnosed as adenoma of the thyreoid gland associated with general enlargement of the gland. Her basal metabolic rate before operation was + 16.5%. Fifteen months after operation her basal metabolic rate was — 17.4% and definite symptoms of hypothyreoidism had developed.

If periodic estimations of the basal metabolism were made after operation, therapeutic measures could be undertaken earlier when symptoms of hypothyreoidism arise.

In myxœdema, cretinism and hypothyreoidism estimations of metabolism are important for diagnosis and treatment.

CASE VIII.—Mrs. P., of Sydney, *ætatis* forty-five years, began to feel definitely "off colour" though not actually ill. She was irritable, depressed and everything worried and upset her. Her physician advised a sea trip. On arrival in England a slight thickness of the voice suggested a possible myxœdema. The basal metabolic rate was — 15% and a great improvement followed thyreoid therapy.

In determining the dosage of thyreoid extract, basal metabolic rate estimations are of great assist-

ance, as clinical observations allow too gross a range without definite symptoms indicating either excessive or inadequate use of gland substance.

CASE IX.—E.W., a female, *ætatis* thirteen years, was suffering from definite myxinfantilism with the intelligence of a girl of eight. She was twenty-six centimetres under height (see Figure I.). There was definite delay in ossification. The basal metabolic rate was —37%. After two months' treatment she had greatly improved (see Figure II.). Clinically the dosage of thyreoid seemed adequate, but the basal metabolic rate was still —16.4%. The dose was increased and a year after treatment she had become a useful member of society and her mother's pride and had grown fifteen centimetres (see Figure III.).

CASE X.—Mrs. H., *ætatis* thirty-nine years, had definite myxœdema. She had slurred speech, was of poor mentality, was puffy, had a malar flush, an alabaster appearance of face, rough hands, coarse, dry, brittle hair and a subjective feeling of cold. Her basal metabolic rate was — 28%. A year later she was completely restored to health and was feeling very well. Her basal metabolic rate

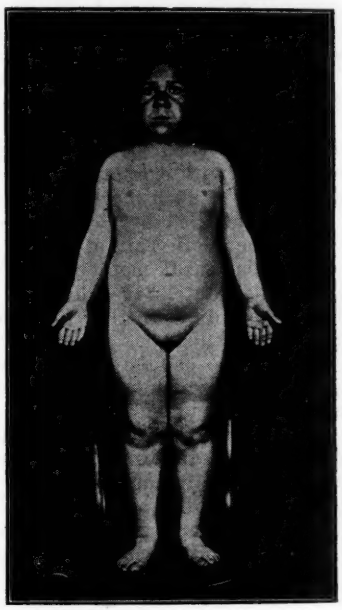


FIGURE I.

was + 18.3%. The amount of thyreoid extract was accordingly diminished. There was nothing definite clinically to suggest that she was receiving too much thyreoid and the dose was less than 0.12 gramme (two grains) a day.

With the renewed interest in iodine as a therapeutic agent in exophthalmic goître estimations of metabolism have helped to illuminate our knowledge of this disease. Broadly speaking Plummer[17] has shown that the administration of iodine removes all clinical evidence that is considered pathognomonic of exophthalmic goître. After a few days on 0.6 mils (ten minims) of Lugol's iodine solution[1] three times a day the staring agitated appearance, the restlessness, tremor and so on generally go, but the metabolism remains elevated and in some cases

[1] The formula used by him was iodine five grammes, potassium iodide ten grammes in water to one hundred cubic centimetres.

FIGURE II.

almost uninfluenced, especially in old standing cases. From these facts the following theory has been formulated to account for the pathological condition:[18] Some chemical body, a "toxin," arises in the body, capable of stimulating the thyreoid to overactivity. The excessive production of thyroxin leads to an increased metabolism and this may be quite considerable, + 50% or more in some cases, and yet the patient may feel well and clinically no

FIGURE III.

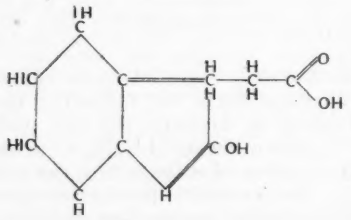
definite evidence of disease may be present. Such cases are not uncommon and may come under medical attention for symptoms other than those connected directly with hyperthyreoidism.

CASE XI.—Wm. E., a male, *ætatis* thirty-nine years, consulted a doctor for bronchitis, but otherwise felt quite well and able to carry on his occupation. As he had tachycardia and slight exophthalmos after the bronchitis had cleared up, his metabolic rate was estimated and found to be + 58%.

CASE XII.—E.W., a female, *ætatis* twenty-eight years, complained of soreness of the neck. On careful questioning no other symptoms were elicited. Examination revealed slight symmetrical enlargement of neck. There was no *bruit*. Slight exophthalmos was present, but no other eye signs. There was no palpitation. Her periods were regular. Her basal metabolic rate was + 27%.

These cases are considered by Plummer as "compensated hypertrophies." The next stage is decompensation, due to the production of an imperfect thyroxin following insufficiency of available iodine. It is this product that causes the nervous phenomena. On giving iodine normal thyroxin can again be formed and the nervous symptoms disappear.

Thyroxin, the active principle of the thyreoid gland, was isolated by Kendal[19] and has the formula



It is thus 4-5-6 trihydro, 4-5-6 triiodo, 2 hydroxyl β indol-propionic acid. This hypothesis of a changed secretion is attractive as it helps to explain certain paradoxical conditions such as mixed cases in which symptoms of toxic goître and myxœdema exist side by side. The following case may be an example of this.

CASE XIII.—E.S., a female, *ætatis* forty-six years, had had exophthalmic goître with classical signs and symptoms two years previously. For six months the treatment had been palliative; then right-sided thyreoidectomy had been performed. She had been exceedingly well for three months, but then after unusual exertion she had fainted and her nervous symptoms had returned and persisted. When next seen she had complained of lienteric diarrhœa, shortness of breath on exertion and swelling of the feet, sensation of both heat and cold, but especially of cold, was increased. On examination she was found to be very nervous; her face was moist but flabby and there were exophthalmos and widened palpebral fissures; the eyebrows were scanty and the hands moist; definite tremor was present. The pulse rate was 104. No cardiac murmur was heard. Her basal metabolic rate was —18.3%. This patient had been readmitted for further operative treatment!

Boothby and others working in the Mayo Clinic have done some very important work in showing the food requirements in exophthalmic goître. He estimated the caloric value of diets given to his patients and in one found that on a diet averaging 5,245 calories over seventeen days, there were 699 calories a day unaccounted for, after making the most liberal allowances for specific dynamic action of food stuffs, energy expended in movements and so forth.

TABLE IV.—CALORIC BALANCE SHEET: FOOD INTAKE AND CALCULATED EXPENDITURE.

Source.	Calories.
Food consumed—	
Average for 17 days	5,245
Estimated metabolism—	
Basal requirements	2,150
Protein deposit (38 grammes)	156
Fat deposit (115 grammes)	1,070
Specific dynamic action of food	525
30% of basal for movements	645
Total	4,546
Balance to be accounted for	699

This stimulated these workers to estimate the cost of work in exophthalmic goître. It was then ascertained that the thyreotoxic patient is a most inefficient machine. Such patients require nearly twice the number of calories to perform the same amount of work as a normal individual.

From these results it can be seen how important it is to give patients with exophthalmic goître large diets and why rest is of such therapeutic value. For example a patient studied by Boothby and Sandiford had a basal metabolic rate of + 50% on three successive days; the basal metabolic requirements were calculated at about 2,370 calories for twenty-four hours, yet on a diet of 4,700 to 5,000 calories this patient lost 0.3 kilograms each day.[20] These investigators found no change from the normal in the nitrogen metabolism and protein food exerted its ordinary specific dynamic action.

Another very important use of estimations of metabolism in thyreoid disease is that it provides an unbiased proof of the value of treatment. If all the patients in any one hospital had routine estimations of metabolism and if one type of treatment was adhered to in the individual case, then very valuable statistics would be obtained. Up till now the results of one treatment only in any one place is available. What we want to know is the best form of treatment available under the conditions existing in any hospital.

The basal metabolism in cases of puberty goître has recently received attention by Gardiner Hill[21] at St. Thomas's Hospital. A number of his patients had raised metabolism. In the majority the metabolism was normal, while some had lowered metabolic rates. However, until a sufficient number of normal persons are studied before, during and after the onset of puberty, we cannot tell what is the change to be considered as normal at this important period of life.

The Pituitary Gland.

Disorders of the pituitary gland *per se* probably have no influence on the rate of cellular activity. Boothby[22] says: "There is, however, as yet little evidence that the secretion of any part of the pituitary gland is concerned with the normal rate

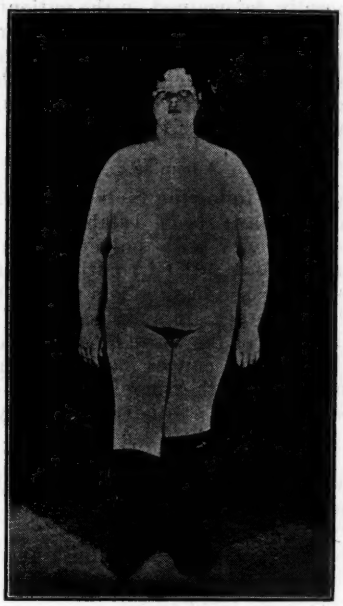


FIGURE IV.

of cellular combustion in the sense that it acts as a calorigenic agent." However, the matter does not rest there, as gross pituitary disorders affect the balance of other endocrine glands and often very great changes in metabolism result. The metabolism is at times increased as in early cases of acromegaly[23] as pointed out by Cushing in 1912.

The following case is an example.

CASE XIV.—C.A., a female, *ætatis* forty years, complained of pains in her head and hands, a feeling of pressure on the top of the head, drowsiness, great thirst, failing eyesight and amenorrhœa. On examination typical acromegalic changes were noted and in addition bilateral goitre and glycosuria. X ray examination revealed a greatly enlarged pituitary fossa and the anterior clincid processes appeared to be fractured. There was tufting of the phalanges. The basal metabolic rate was + 25%. Three months later the basal metabolic rate was + 3.3%. Fourteen months after the first test the basal metabolic rate was — 30%.

The increase in metabolism in pituitary disorders may be associated with great adiposity.

CASE XV.—E.H., a female, *ætatis* forty-nine years, complained of stoutness and headaches. On examination she was found to be 144 centimetres (four feet, nine inches) in height and 118.7 kilograms (eighteen stone, ten pounds) in weight. She was so short and fat that one could not tell whether she was sitting or standing. Her eyes were prominent; there was a positive von Graefe sign and X ray examination revealed an enlarged pituitary fossa and some tufting of the phalanges. The basal metabolic rate was + 30%. This patient lost ten kilograms in three months on organo-therapy.

In later cases of acromegaly the metabolism often tends to become subnormal; the history of C.A. (Case XIV.)[23] illustrates this stage of the disease. When the basal metabolic rate has fallen, organo-therapy often does an enormous amount of good.

Peter Bassoe[24] summarizes the part the thyreoid gland plays in acromegaly as follows:

> This gland is usually diseased. Furnivall found it normal in only five of twenty-nine cases. The pathological changes, however, are very variable. While hypertrophy is common, combination with actual Graves's disease is rare. . . . Myxœdema received early attention by Ponfick and the relation of the two conditions is thoroughly discussed by Millioni who observed both fully developed in one patient.

In Fröhlich's syndrome a greatly lowered metabolism may exist, especially in cases of long duration.

CASE XVI.—M.P., a male, *ætatis* fourteen years, weighed four and a half kilograms (ten pounds) at birth and at three years old 28.5 kilograms (four stone). He had minor ailments during childhood; his vision with the right eye was always blurred; he felt the heat excessively. At fourteen years when he first came under observation he weighed 155.5 kilograms (twenty-four and a half stone) and complained of fatness, shortness of breath and occasional polyuria. On examination it was found that he had no sexual development, that there were numerous comedones, that his voice was piping, but that his intelligence was normal. His height was 168 centimetres (five feet, six and a quarter inches) as compared with the normal height of boys of the same age of 150.5 centimetres (four feet, eleven and a half inches). His weight was 146 kilograms (twenty-two stone twelve pounds) stripped (see Figure IV.). The normal weight for his age is 41.7 kilograms (six stone eight pounds). His basal metabolic rate was —52.5%. X ray examination revealed an almost entire absence of a pituitary fossa (see Figure V.); his epiphyseal development was almost complete. On treatment by pituitary and thyreoid gland substance his weight was reduced to 93.5 kilograms (fourteen stone ten pounds) in two years (see Figure VI.). At one stage his basal metabolic rate rose to + 25.2%. His metabolism and weight could be controlled with the greatest facility by varying the dosage of pituitary gland and thyreoid gland.

In cases of short duration the basal metabolic rate is often unaffected.

CASE XVII.—W. J., a male child, *ætatis* nine and a half years, had been normal till the age of seven. He then had pneumonia, measles and double pneumonia in quick succession. Afterwards he began to get stout and during last year had got very stout. He had also suffered from mental depression, precipitous defæcation and asthma. On examination he was found to be extremely adipose; his girdle obesity great, his breasts were very large, his extremities tapering; his face was round, nose snub, upper lip large and intelligence above normal. X ray examination revealed the pituitary fossa normal in size and shape, the epiphyses of the metacarpus very far advanced in

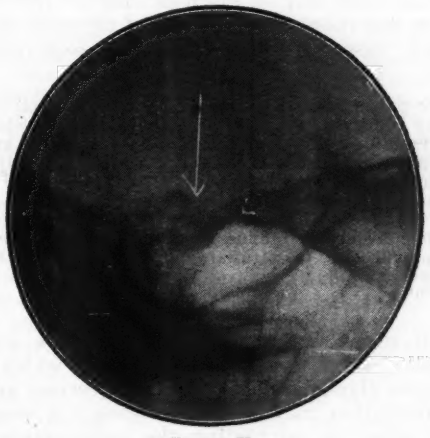


FIGURE V.

FIGURE VI.

development, while the carpus was ossified and bone was deposited in excess (see Figure VII.). His visual fields were definitely contracted. His height was 134.5 centimetres and his weight was 56.2 kilograms. The normal height for a boy of his age is 126.4 centimetres and the normal weight is 27.4 kilograms. His basal metabolic rate was — 0.4%. On thyreoid and pituitary extracts his weight decreased from sixty kilograms (eight stone, five pounds) to forty-five kilograms (seven stone, two pounds). This loss of weight during a period when he would be growing and adding more weight shows how such patients can be controlled. Unfortunately this patient died during another attack of pneumonia.

In the treatment of pituitary disorders estimations of basal metabolism are of importance in assaying the amount of thyreoid to administer. These patients tolerate more pituitary substance when thyreoid is taken at the same time and as long as the metabolic rate is not increased, thyreoid does not have any deleterious effect. Harvey G. Beck in discussing the rationale of thyreoid therapy in such cases of *dystrophia adiposo-genitalis*[24] states:

> The presence of the thyreoid hormone as well as that of the pituitary is essential to the normal development and function of the gonads. Moreover, it is the greatest stimulant to metabolism known, acting probably as a general protoplasmic stimulant. The thyreoid also stimulates the pituitary function. It is thus easily conceivable how the administration of thyreoid gland substance would favourably influence the various groups of symptoms due to pituitary deficiency in *dystrophia adiposo-genitalis*.

Diabetes.

Estimations of metabolism in diabetes are not generally useful, but in certain cases in which other endocrine glands are also affected, a certain amount of information may be forthcoming. A practical point arises in calculating the maintenance diet. This is generally determined on the patient's weight. A more rational plan would be to determine the caloric requirements on the weight calculated from the normal age and height tables, otherwise a patient over weight gets more than he requires and a patient under weight less than he needs.

Anæmias.

In anæmias the following facts of clinical importance seem to have been established: (i.) The majority of patients with polycythæmia have an increased metabolism;[26] (ii.) patients with leuchæmia have an increased metabolism up to 100% above normal.[27] Whether this is due to the high metabolic activity of the white blood cells or to some chemical body that causes both the increase in metabolism and the other manifestations of disease has not been decided. Gunderson, however, found a general correlation between the basal metabolic rate and the number of leucocytes. There is apparently no qualitative change in metabolism, as direct and indirect calorimetry agree and the respiratory quotients are normal.[27] (iii.) As regards the secondary anæmias nothing can yet be decided, since the causal agents of the anæmia have variable effects on metabolism.

Metabolism in Fever.

This is a most interesting study but can only be very briefly considered. The following facts have been established.[28]

(1) During a rise of temperature heat production increases, heat loss also increases but not to the same extent.

(2) When the raised temperature becomes established, heat production and heat loss are both increased, but balance. The temperature is a gauge of the higher level of heat production. Each degree

FIGURE VII.
Showing early fusion of epiphyses of carpus and metacarpus with the shafts.

centigrade represents about 13% increase of heat production.

(3) During a fall of temperature heat loss exceeds heat production, the heat-regulating mechanism adjusts itself to a lower level.

(4) There is a toxic destruction of protein during fever and no matter how great a quantity of food is given, it is practically impossible to prevent a "negative" nitrogenous balance, but a liberal diet spares endogenous protein metabolism to a considerable extent.

(5) Food stuffs exert no specific dynamic action during fever, the endogenous production of amino acids causing in this respect the maximal possible stimulation of metabolism. This is important in proving that the metabolism of food during fever does not increase the heat production and so cannot raise the temperature further.

(6) Food stuffs are digested and metabolized to the same end products as in health and the respiratory quotient is within normal limits.

(7) During convalescence there is a "positive" protein balance.

These are the salient facts of the work carried out by Du Bois, Coleman and others at the Bellevue Hospital in New York. The greater part of their work which extended over several years, was on typhoid fever patients, all of whom received diet of high caloric value. These patients were able to read the paper daily throughout their illness and maintained their weight.

Basal Metabolism in Other Disorders.

Estimations of basal metabolism may be of importance both in those conditions labelled neurasthenia in which the general nervous state is combined with some degree of exophthalmos, tachycardia and tremors, and in cases of persistent tachycardia. In both of these types the thyreoid gland may be involved and examination of the basal metabolic rate is often of differential diagnostic importance.

Estimations of basal metabolism may give proof of some underlying endocrine disturbance in certain types of cases which do not fall into definite categories of disease, but which are often troublesome to treat.

Such cases are best illustrated by individual histories.

Obstinate Constipation.

CASE XVIII.—A.L., a female, *ætatis* fifteen years and nine months, complained of most obstinate constipation which had resisted all forms of drug treatment. Headaches were also a feature, but all systems appeared normal except that menstruation was very irregular and scanty. The basal metabolic rate was — 13.5%. On thyreoid therapy a daily motion of the bowels was obtained and menstruation became regular with a cycle of twenty-eight days lasting three to four days.

Migraine.

Migraine is such a *bête noir* that a method ameliorating the lot of any patient is worth considering. There seems to be a type of case in which severe migraine is associated with a lowered metabolism and in such cases the patients often gain great relief when treated with thyreoid and posterior pituitary gland extracts.

CASE XIX.—K.V., a female, *ætatis* thirty-three, began to have bilious attacks at the age of seven which improved when menstruation began. Menstruation commenced at the age of fifteen, but was never regular, the intervals being from three weeks to three months and the duration from one to several days. The patient married at the age of sixteen and had a child. When she was seventeen she had double oophorectomy and ventrofixation for dysmenorrhœa. Her periods ceased altogether. The patient had good health for two years. Then after concussion from a fall, the bilious attacks and headaches returned. They are now a regular weekly occurrence.

Before the attack she feels very well, has an extra amount of energy and is excessively hungry. At about five o'clock in the morning she begins to sneeze and has pain over the bridge of her nose and back of the right eye. She then begins to have violent retching which becomes progressively worse during the day, the headache at the same time working round to the back of the head. The attack ends at about midnight. Following the actual attack there is a period of depression for forty-eight hours.

Other symptoms were constipation and subjective feeling of cold. On examination she proved to be a thin woman with an extremely care-worn, tired-out look and sallow complexion. Her eyelids were puffy and ecchymosis from the last attack of vomiting were seen. She had severe pyorrhœa. The other systems appeared normal. The basal metabolic rate was — 24.4%. The sugar tolerance curve reached a normal height, but its return was delayed.

When treated with whole gland pituitary and thyreoid gland, the attacks ceased altogether. Before treatment with organo-therapy she had tried everything.

CASE XX.—J.O'B., an unmarried female, *ætatis* forty-five years, complained of vomiting after meals. Her previous illnesses were exophthalmic goître at the age of sixteen, typhoid fever at the age of nineteen, followed by oophoritis for which left oophorectomy was performed. She had acute rheumatism at twenty-three.

Two years ago she went to bed well and awakened during the night with an acute vomiting attack which was diagnosed as gastric influenza. Since then she has vomited a portion of practically every meal. There is no nausea, "the stomach just seems to contract and up comes the food." There is no tenderness and no pain. The longest interval without vomiting was a fortnight. With severe attacks she tends to be constipated. Menstruation had been normal except for ten months following the oophorectomy. For the last five years the cycle was twenty-one days' interval and five days' loss and there was a tendency to menorrhagia. Lately she had noticed a decline in mental activity.

During her stay in hospital she had an influenzal attack, the temperature reaching 39.8° C. (103.6° F.), but the pulse varied between 72 and 90 per minute. The basal metabolic rate was — 12%; the basal pulse rate was 62. Following thyreoid therapy there was a complete cure. She was given 0.03 gramme (half a grain) three times a day; at first she retained five meals then seven, then eleven meals without vomiting and did not vomit again while in hospital. Two months later she felt so well that she left off the thyreoid, but vomited again. The patient was a qualified nurse in a responsible position and had been examined and treated by every type of "specialist."

Before concluding, a few remarks on organo-therapy may not be amiss. Organo-therapy is a rational and important form of treatment, but patients should be proved to have definite endocrine deficiencies before treatment is instigated. Estimation of basal metabolism is one means of investigation in certain types of cases. The indiscriminate use of extracts of endocrine glands "on spec." is as about as rational as the treatment of every thirsty soul by "Insulin" in the hope that the desire for a drink is diabetic in origin.

In conclusion I think that the following claims can be made for the clinical estimation of basal metabolism:

(1) It provides a mathematical expression of a definite biological phenomenon, namely, the energy requirements of an organism under various conditions.

(2) It affords the most accurate means of determining the activity of the thyreoid gland.

(3) It has greatly helped to elucidate our knowledge of the metabolism in disease, especially thyreoid disease, diabetes, fever and malnutrition.

(4) It affords valuable information for treatment indicating what measures are required, the amounts necessary and the results attained.

I should like to express my thanks to the members of the St. Thomas's Hospital Medical Unit for permission to illustrate this lecture by the statistics, histories and photographs of patients of the unit.

References.

(1) D. Du Bois and E. F. Du Bois, "Clinical Calorimetry," IV., *Archives of Internal Medicine*, 1915, Volume XV., page 868; E. G. Benedict and F. B. Talbot, Carnegie Institution of Washington, 1921, Publication No. 302, page 16; G. Dreyer, C. Ray and Walker, *Proceedings of the Royal Society*, 1912-1913, Volume 86, pages 39 and 56.

(2) J. R. Murlin, "On the Law of the Surface Area in Energy Metabolism," *Science*, 1921, Volume LIV., page 196; G. Lusk, "Science of Nutrition," Third Edition, 1917; E. F. Du Bois, "Basal Metabolism in Health and Disease," 1924; M. Kunde, *Archives of Internal Medicine*, 1923; G. Lusk, "The Physiological Effects of Undernutrition," *Physiological Reviews*, January, 1921, Volume I., page 523.

(3) W. M. Boothby and I. Sandiford, "Basal Metabolism," *Physiological Reviews*, January, 1924, page 69.

(4) G. Lusk, "Science of Nutrition," Third Edition, 1917, page 63.

(5) E. F. Du Bois, "Basal Metabolism in Health and Disease," pages 89 and 103.

(6) C. G. Douglas, *Journal of Physiology*, 1911, Volume XLIII., page 17; J. S. Haldane, "Gas Analysis"; E. P. Cathcart, "Method of Estimating Energy Expended by Indirect Calorimetry," *Journal of the Royal Army Medical Corps*, 1918, Volume XXXI., page 339; W. M. Boothby and I. Sandiford, "Laboratory Manual of Technique of Basal Metabolic Determinations," 1920.

(7) M. Kunde, *Archives of Internal Medicine*, 1923; R. Robison, "The Value of Gelatine in Relation to the Nitrogen Requirements of Man," *Biochemical Journal*, 1922, Volume XVI., No. 1; G. Lusk, "The Physiological Effects of Undernutrition," *Physiological Reviews*, 1921, No. 1; W. M. Boothby and I Sandiford (verbal).

(8) E. F. Du Bois, "Basal Metabolism in Health and Disease," page 295; N. Zuntz, *Archiv für Gynäkologie*, 1912, *Seite* 96; M. Kunde, *Archives of Internal Medicine*, 1923; W. M. Boothby and I. Sandiford, "Basal Metabolism," *Physiological Reviews*, 1924, Volume IV., No. 1.

(9) H. F. Root and H. K. Root, "The Basal Metabolism During Pregnancy and the Puerperium," *Archives of Internal Medicine*, Volume XXXII., page 411; T. M. Carpenter and J. Murlin, *Archives of Internal Medicine*, 1911.

(10) F. G. Benedict and F. B. Talbot, Carnegie Institute of Washington, 1915, Publication No. 233; E. F. Du Bois and F. C. Gephart, "Clinical Calorimetry," XIII., *Archives of Internal Medicine*, 1916, page 902.

(11) C. J. Martin and R. Robison, "The Minimum Nitrogen Expenditure of Man and the Biological Value of Various Proteins for Human Nutrition," *Biochemical Journal*, 1922, Volume XVI., No. 3, page 435.

(12) G. Lusk, "Science of Nutrition," Third Edition, 1921, page 153.

(13) G. Lusk, *Journal of Biochemistry*, 1915, Volume XX., page 8.

(14) F. G. Benedict, Carnegie Institution, Washington, 1915, Publication No. 203.

(15) E. F. Du Bois, "Basal Metabolism in Health and Disease," page 186.

(16) Magnus Levy, *Berliner Klinische Wochenschrift*, 1895, *Band* 32, *Seite* 650 (quoted by Du Bois).

(17) H. S. Plummer and W. Boothby, "The Value of Iodin in Exophthalmic Goitre," *Iowa State Medical Society Journal*, February, 1924.

(18) H. S. Plummer, Lectures at the Mayo Clinic, September, 1924.

(19) E. C. Kendall, Harvey Society Lectures, 1920-1921.

(20) W. M. Boothby and I. Sandiford, "The Total and Nitrogenous Metabolism in Exopthalmic Goitre," *Journal of the American Medical Association*, September 8, 1923, page 795.

(21) H. Gardiner Hill, P. C. Brett and J. Forrest Smith, "Studies in Adolescent Goitre," *Quarterly Journal of Medicine*, January, 1925, No. 70.

(22) Quoted by Du Bois.

(23) Harvey Cushing, "The Pituitary Body and Its Disorders," 1912.

(24) Peter Bassoe, "Acromegaly," *Endocrinology and Metabolism*, Volume I., page 840.

(25) Harvey Beck, "Distrophia, Adiposo-Genitalis," *Endocrinology and Metabolism*, Volume I., page 911.

(26) E. F. Du Bois, "Basal Metabolism in Health and Disease," page 304.

(27) J. B. Murphy, J. H. Means and J. E. Aub, "Clinical Calorimetry," XXIII., *Archives of Laboratory Medicine*, 1917, page 890.

(28) E. F. Du Bois, Coleman and others, "Clinical Calorimetry," *Archives of Internal Medicine*, 1914-1915

A DEFINITION OF NORMAL LABOUR: THE CAUSE OF PAIN IN LABOUR.

By Mary C. De Garis, M.D., B.S. (Melbourne), *Geelong, Victoria.*

I have ventured to make a new definition of normal labour. Before giving it, I wish to criticize the present accepted definitions, practically all of which are based on Denman's (which may be read in an edition of his classic book published in 1805). The one exception found in a glance through many textbooks published since 1805, was Barnes's (1875): "Eutocia is labour proceeding smoothly and terminating favourably under the natural forces." This is excellent as far as it goes, but it is not detailed and practical enough. Practically all the others rely on a time limit (twenty-four hours), a head presentation, a spontaneous delivery without harm to mother or child as tests of normality. All these definitions ignore the patient's point of view, the number of pains, their individual efficiency and the amount of suffering caused by them and the fact that many a labour needs interference on these accounts alone long before twenty-four hours have elapsed. We all know indeed that twenty-four hours is long for a labour and does not often occur in so-called normal labours unless the pains are

very infrequent. In practice everyone recognizes the real disadvantage of severe labour pain and hastens to relieve it by morphine, hyoscine, "Heroin," chloroform and so on, but in theory few regard all labour pain as disadvantageous and as an indication of inefficiency or inertia.

Denman's definition is: "We will then say that every labour shall be called natural if the head of the child present, if the labour be completed within twenty-four hours and if no artificial assistance be required." Herman says: "For labour to be natural not only must the child be living of not more than average weight and size and presenting in the most favourable position, but the labour pains must be normal, *id est* uterine contractions must recur with such force and frequency that the child is born within twenty-four hours from the time at which the pains began. The average length of labour is less than this."

The effort of all obstetricians, excepting Barnes, seems to have been to frame a definition that would cover the average case. They have given a generalized description of the average labour and mistaken it for a definition of a normal labour. Indeed, Herman clearly says the average labour is better than his normal.

Now a normal labour is a standard labour and not an average labour. The true object of a definition of normal labour is to provide a norm or standard by which may be studied the variations therefrom, both in their occurrence and in their causation. It should plainly be that of the best and easiest labour known.

A true definition must consider the patient's feelings and reactions as well as the signs she presents to the attendant. Labour has been studied too exclusively from the mechanical point of view and not enough from the physiological point of view, probably because of its study having been begun in countries where rickets is common (and continued under their influence) by obstetricians who were constantly having to deal with mechanical difficulties, such as contracted pelvis. In this happy country of large pelves and large babies, obstruction is rare and yet some mothers still have need of forceps delivery. My proportion is one in six, roughly (no forceps of convenience and no contracted pelvis). Any definition to be satisfactory must be physiological in its main features and must be of the best and easiest labours known, due heed being paid to the mother's point of view.

To a Munro Kerr a painless labour is pathological; to the woman it is the only eutocic labour.

Pain in every other function but labour is accepted as due to some fault in the process; why not in labour too? Compare labour, micturition and defæcation: they are all the result of the expulsive efforts of the plain muscle walls of hollow organs. Their action and physiology must be very similar; the last two are painless if healthy. Surely pain in the first argues some fault, especially as painless labours are known to occur and are recorded in the medical journals not infrequently. These labours without pain are in themselves sufficient to prove that pain is not a necessary feature of labour. Most of us see some very easy labours. Years ago I met two women admitted to the Women's Hospital, Melbourne, with their babies already born, one of whom said that she had no pain and the other of whom said she had one pain. I have seen one very easy labour (not painless) in Geelong and I have met several women in Geelong who have given me histories of almost painless labours. In reviewing the literature of painless labour one finds an anxiety among critics to prove that there was some pain, but it is certain that women would welcome a reduction of the number of pains to two or three, almost as much as a reduction to none at all.

The formation and expulsion of an infant is certainly a sufficiently complicated process to admit of many faults.

Now for my definition: A normal labour is one in which the uterine contractions act thoroughly efficiently, leading in a short time to the spontaneous delivery of a healthy baby and causing but little or no distress or suffering to the mother.

With the acceptance of such a standard of normal labour we can begin the study of the causes of the variations so common in labour. We all know that no two labours are quite alike. There exists, however, no study of these variations nor of their origin. In a small book that I hope to publish this year, I make a modest attempt at a classification of the variations of labour most commonly seen and at the study of the symptomatology of labour. When one remembers that painful menses were quite recently considered normal and knows that sensible dress and exercise have restored painless menses to women, it is not too much to hope that improved diet and improved health will abolish pain in labour. As it is, we know that proper antenatal care can give safe labour to any mother. With more knowledge gained by research in the laboratory and in the clinic we may hope to promise first easier labours and then easy labours.

McCollum's results with rats and cattle have proved the relation of diet to lactation, fertility, viability, duration of life and vigour. He does not remark on the effect on labour itself.

I think that pain in labour and still births and congenital debility are due to related causes—maternal deficiencies or excesses or poisons and the like and that the securing of truly normal labour would secure vigorous children also. The fact that none of us can guarantee an unassisted labour to any woman proves our ignorance of the secrets of labour and of the physiology of the uterine function. We ought to urge a clinical research and a laboratory research also into the factors affecting the efficiency of uterine action. We know by common experience that it varies in different women and in ways of which we know so little, that we cannot predict the character of an expected labour, unless we know the character of a previous labour. The fact that a woman tends to have the same kind of labour repeatedly and the fact that dysmenorrhœic

women are apt to have tedious, painful labours, suggests that there is some permanent fault in her physiological make-up, affecting her uterine function. Certainly women with painless menses may have very painful labours, but if we regard labour as a sort of hill-climbing test for an engine, we cease to wonder that first the strain of pregnancy (finding nourishment and metabolism and excretion for two) and then the crisis of labour (which is well named, it is hard work) should find out faults previously unnoted.

What is the cause of pain in labour? The cause or causes are the causes of primary inertia.

In inertia, as in other medical conditions, symptoms precede signs. Pain should be regarded as an early symptom of primary inertia. As in other medical conditions the symptom may disappear before the sign appears. There may be some inertia and yet the patient may be delivered spontaneously. The more severe the pain, the less likely is the patient to deliver herself. The wise Barnes noted this many years ago. In 1875 he wrote: "It is too true that expulsive effort and pain commonly go together, but they are essentially distinct; they have no necessary correlation. In the most propitious labours, although the contractile power is active and vigorous, there may be little or no pain. It may even be stated as a general truth that the greater the pain, the wider is the departure from propitious labour. Where pain predominates, more or less disturbance of the typical harmony between the factors of labour is certainly entailed." "If pain arise, it is because the resistance is in excess of the expelling force or because the subject is abnormally sensitive. In either case pain, an abnormal element, disturbs the equable connexion."

If to pain is added a sense of exhaustion, there is evidence of an increasing inertia, while a rising pulse and temperature and obvious exhaustion indicate a serious degree of inertia.

In the laboratory McCollum has shown that dietary deficiencies, such as lack of sufficient lime or vitamin or protein, causes an ill health evidenced chiefly or only by absolute or partial sterility, fœtal mortality, shortened life and so on.

Let me repeat: We ought all to urge clinical and laboratory research into the factors affecting the efficiency of uterine action. I am convinced that even a merely clinical research conducted purely locally, as in Geelong, would teach us a great deal. With an organized team work, laboratory and clinical research, State-wide, we could lead the world in making labour easy for women. We could not do this without benefiting the whole race, for everyone has to be born and each child born would be more vigorous. By a study in animals in the laboratory we could determine the effect of lime, phosphorus, iodine, mineral balance, vitamins, endocrines and dead teeth on pregnancy, labour and the puerperium. Such knowledge would guide the clinician in his efforts.

Uterine action requires more analysis, including clinical analysis, than it has received. My own studies lead me to claim that there are at least eight or nine divisions that may be observed in ordinary everyday practice. I even think that these may ultimately be recognized as definite clinical entities and surmise that a shortage of lime may cause one grouping of symptoms and a shortage of iodine another grouping of symptoms, while a shortage of both would occasion yet another *ensemble* and so forth. I have a clinical record of a few of my cases to show an easy method of both recording and at the same time analysing cases, so that comparison of one case with another and one feature with another both in the same and in other cases, becomes very easy. I have not enough records to prove anything, only enough to illustrate my clinical classification, not to relate any one of them with any particular deficiency. However, for laboratory investigation to be fruitful in actual practice it must be based on some such clinical analysis.

A study of a series of cases recorded in this way soon confirms one's general impression that it is in dilatation and not in expulsion that difficulty and pain most often arise. There is more clinical interference in the expulsive stage, because it is the second stage occurring in a tired patient and also because interference is then easy, but not because the second stage is necessarily itself defective. The common opinion that undue resistance is the common cause of pain and inertia is mistaken. The duration and suffering and amount of pain of labour depend chiefly on the duration and degree of efficiency of the first stage. It is rare to have a long second stage after a short first stage, unless there is a mechanical hindrance. The faulty action must be due to some constitutional fault, probably some fault in the "humours." Just as Ringer's fluid must be balanced "just so" in the laboratory to secure good cardiac contraction, so probably must the bodily humours also be balanced "just so" to secure good uterine contraction, especially as regards minerals, endocrines and vitamins. As the formation and expulsion of an infant take much lime, phosphorus and some iodine, it is easy to imagine a shortage of lime, phosphorus and iodine, especially as mothers often do not take enough of the lime-bearing foods (milk and the green leafy vegetables). In the early vomiting of pregnancy we all find minerals of one kind or another useful, for example, cerium oxalate, calcium lactate, iodine and the like. It is as if the system needed to get into training for its increased task, the early strain falling first on the mother's mineral reserve, later perhaps on its endocrine glands and other structures.

In an organized clinical research the effect on labour and on pregnancy of various additions to the diet should be noted in a number of women. Even the effect of the old wife's "raspberry tea" should be tried. It is possible that it contains some special vitamin of exceptional value to the pregnant woman.

I wish that we, as an Association, would approach those in charge of the research which is being financed by the Edward Wilson Trust into the causes of death and illness among mothers, and tell them that we think that a solution of the problem of what physiological factors control the

efficiency of uterine action, would do more to solve the general problem than any other measure could do.

That all is not well with obstetrics is shown by the long correspondence appearing in our journals, but none has solved the problem of our infant and maternal mortalities so far. I think the real cause lies in ill-health of the mother—humoral ill-health often shown only by errors in the reproductive system and longevity.

The long-standing quarrel between the specialist and the general practitioner may be composed by recognizing that cleanliness at labour is not in itself sufficient to prevent illness during the puerperium. It merely prevents accidental infection (once so common as to be a scourge—now rare) and has no curative effect on that already in the system. It is easier to blame someone else for carelessness than it is to recognize the real cause of infection.

Beside attributing pain and inertia generally to constitutional causes, I also think that subinvolution and *post partum* hæmorrhage from faulty retraction are due to similar causes in many cases.

The effect of toxins on pregnancy and labour is very real. In my experience dead teeth and *pyorrhœa alveolaris* cause albuminuria and toxæmia during pregnancy. According to Talbot diseased tonsils are also a frequent cause of the same. I feel sure that much toxæmia of pregnancy and eclampsia are due to dead teeth poisoning. I have seen remarkable improvement in the general condition follow extraction of the teeth. It seems to me that apart from defined toxæmia tooth poisoning has a selective action on the endocrine glands, especially on the thyreoid. Certainly in the non-pregnant one often finds great relief of symptoms by supplying the patient with small doses of polyglandular preparations.

According to Bandler labour itself is due to a crisis in the endocrines. If it is, then a healthy endocrine system must make an enormous difference to the efficiency of labour.

At least symptomatic relief can be given by glandular treatment during the pregnancy. I have found Parke, Davis and Company's *"Liquor Sedans"* very useful in controlling false pains and threatened miscarriage. I regard false pains as an evidence of imperfect activation of the uterine muscle. I also think that later labours are easier than first labours because the uterus has retained some of its previous activation rather than because of the easier dilatation to which the ease is usually credited. My reason for thinking this is that a large proportion of the recorded cases of painless labour have occurred in *primiparæ*.

At present we can promise safe labour to our patients, if cared for in the antenatal period. If we knew more, doubtless we could promise easy, unassisted labour. We shall only be successful if we admit that the average labour is not normal, but is capable of being made so by the education of doctors and patients alike.

THE RADICAL AND CONSERVATIVE TREATMENT OF SALPINGITIS.[1]

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In introducing this subject of treatment of salpingitis I shall briefly give my views in the light of my experience. It will be considered under three divisions, those cases occurring as (i.) acute, (ii.) exacerbating or recurrent, (iii.) chronic.

Acute Salpingitis.

Acute salpingitis will almost invariably subside and the patients should never be operated on in the acute stage, but will require watchful care lest they go on to abscess formation. The degree of resolution to which tubes may attain, depends on the virulence even more than on the type of the infecting organism. The reasons against early operation in acute cases are to my mind overwhelming; not only is the surgical risk much greater, but operation is more difficult and unsatisfactory because of the œdema and friability of the tissues and many tubes will be sacrificed with consequent sterilization of the patient. Hysterectomy also will more often be required, as in early cases of salpingitis it is impossible to gauge the amount of resolution which may occur. The palliative treatment in early cases includes rest in bed, fluid diet, no aperients and morphine as required. The general symptoms which frequently are present, such as vomiting and abdominal distension, are best relieved by starvation and 5% glucose solution *per rectum*. After the acute stage has passed we can assist resolution by hot vaginal douches, aperients and lamb's wool tampons of "Ichthyol" and glycerine. I have also with benefit applied magnesium sulphate crystals to the vaginal vault. Cases which go on to abscess formation may do so as pyosalpinx or tubo-ovarian abscess or may be associated with suppuration of a peritonitic effusion or a cellulitic exudate. If pus be forming, immediate operation is necessary, the approach thereto depending on its localization. Any case requiring early operation is almost certainly complicated by a suppurating peritonitic effusion and posterior colpotomy will be required. Acute pyosalpinx or tubo-ovarian obscess may be opened through the posterior fornix, but it is more dangerous and less satisfactory than the extra-peritoneal approach above Poupart's ligament. A cellulitic exudate never suppurates under about six weeks, but it may be advisable to open into the indurated mass if we suspect a pyosalpinx or tubo-ovarian focus. After opening through the posterior fornix one should never attempt to plunge a knife or push forceps into a suspected abscess, unless one is positive no loop of bowel is in the way. I know of several tragedies due to the neglect of that precaution. Opening a pyosalpinx or tubo-ovarian by the vagina almost certainly means opening into

[1] Read at a meeting of the Obstetrical and Gynæcological Section of the Victorian Branch of the British Medical Association on May 1, 1925.

the general peritoneal cavity, hence my very decided preference for extraperitoneal route above Poupart's ligament. A further warning is not to attempt to open a pyosalpinx or tubo-ovarian abscess with the finger. It is a risky procedure. Define with the finger, open with the knife!

Although the process in nearly all cases of acute salpingitis will subside, the majority of the patients will later require operation of a greater or lesser extent. By that time it will be quite safe and very much more conservative than if done at an early stage.

Recurrent or Exacerbating Salpingitis.

While it is reasonable to wait as long as possible after a first attack to give the tubes every chance for repair and functional restoration, it is certainly advisable to intervene surgically when the patient has had any definite recurrence or exacerbation. In such an event it is my rule to urge operation after the more acute symptoms have subsided, usually in about three or four weeks.

Chronic Salpingitis.

Chronic salpingitis requires patience and judgement. If the patient be in a position to do so, she should continue treatment for some months, general and local, and I emphasize the necessity for sexual continence. When we decide, however, that palliative treatment should no longer be continued, many points have to be considered at the time of operation, such as the extent of damage to tubes, ovaries, uterus, cervix and the advisability of removing the whole or part of these structures. In mild cases with occluded fimbriæ we must be sure that the rest of the tube lumen is patent before doing salpingostomy. This operation in the past has been very disappointing, but I have more confidence in its future, now that by Rubin's method of insufflation we can frequently be assured the restored patency will remain. Up to the present it has been of value only because the woman knows she has not been unsexed. I have no personal knowledge of pregnancy, following salpingostomy, but a few successes have been reported. It is my experience that the more or less chronic condition with pelvic discomfort and dyspareunia persists. In five cases in which I had to open the abdomen subsequent to salpingostomy, I found the tubes again occluded. If one or both tubes have to be removed because of an infection which has spread from below, we should also remove the endocervix. Total hysterectomy is advisable and should be done in most infected cases where double salpingectomy is necessary, but in a young woman with apparently healthy ovaries I would certainly try and save the uterine body in order to allow menstruation to continue.

In salpingectomy the interstitial part of the tube should be removed. As regards the ovaries I prefer to remove them as well as both tubes and uterus in badly infected cases. If we decide to leave them, we must be careful as far as possible not to interfere with their blood supply. Occasionally one or both may be transplanted, but there are objections to that procedure. In three cases I had subsequently to remove an ovary which had been transplanted and I found each one to be a mere cystic shell.

Reports of Cases.

IODINE AS A COMPONENT OF THE VERY YOUNG INFANT'S DIET.

By H. Leighton Kesteven, M.D., D.Sc., Ch.M. (Sydney), *Bullahdelah, New South Wales.*

It is with some hesitation that I offer the following observations and even so I am only persuaded thereto in the hope of getting either confirmation or correction of my tentative conclusions.

Some years ago in the course of a discussion on the artificial feeding of infants the statement was made that no substituted milk could ever be as good as human milk, because human milk alone contained thyreo-iodine. As I had but recently completed four years teaching of physiology, this statement struck me forcibly. I was not aware that thyreo-iodine had been detected in human milk. A subsequent search through the literature failed to confirm the statement. Abderhalden (page 406) says: "It has been suggested that milk may contain iodine. This assumption was made merely because iodine plays an important part in the economy of the cells." Probably it was the search for confirmation that caused the statement to remain so vividly in my memory.

Be that as it may, eighteen months ago I was at my wit's end with a baby five weeks old that was steadily going down hill. The little one had arrived and was apparently a quite normal infant, but had not gained in weight, on the contrary he had slowly lost. The mother was unable to nurse him and the usual standard humanized cow's milk had been administered. This failing, various modifications had been tried to no avail. At the age of five weeks and a day or two the little fellow seemed to be in quite a hopeless condition and in desperation I administered 0.0075 mil (one eighth of a minim) of tincture of iodine with each alternate meal. I must admit here that this was given mainly as a *placebo* for the mother who had made an appeal to me to try and do something for her baby. At the same time I was guided in my choice of the *placebo* by that unconfirmed statement and also by some experiences with iodine which seem to demonstrate that it has a sedative action on the stomach.

The result was most surprising; the little fellow started to pick up right away and has never looked back since.

Though the mother was satisfied that my medicine had brought about the change, I was doubtful (though, of course, I did not tell her so). I regarded the occurrence as a coincidence, still with some lurking wonderment as to whether the iodine had contributed to the result.

My next case was that of a male baby, nearly three months old. The mother, a woman of more than ordinary intelligence, had been following Truby King's instructions with meticulous care and the little fellow had put on only just about one kilogram (2.2 pounds). I took him in hand and under my direction various modifications of the diet were tried without appreciable improvement. More in a spirit of experiment than with a belief in its utility the iodine was prescribed again with the same prompt response.

The third and last case was similar to the first, but this time the iodine was prescribed sooner.

At this point I can quite imagine my colleagues saying "only three cases," and I admit quite freely that I feel much that way inclined myself. On the other hand, the results in these three cases have been so striking that I cannot persuade myself that they are only coincidental and my prospects of testing the question on a series of cases of adequate length are at present so remote that I have felt justified in thus attempting to interest those of my colleagues more fortunately placed in this respect.

My present conclusion is that the iodine was directly responsible for the improvement in all three cases and perhaps I may be permitted to state some of the considerations that lead me to this tentative conclusion.

In the first place the baby that is not putting on weight, has clearly a low metabolism and presents the following additional features resembling the cretinoid state. The temperature is low, the mother tells me that baby is always cold, the skin is dry, it is quite unusual to find such babies perspiring and it is lethargic. This feature was especially noticeable in my second patient.

I am of the opinion that the administration of iodine is virtually treatment by iodo-thyrein. It has been demonstrated that the thyreoid gland is capable of fixing iodine administered as such. Mann says: "From the biological point of view it is interesting that . . . the thyroid glands of mammals possess the power of deionizing and storing in large amounts iodine which is offered them in minimal quantities and in the state of an ion." Pembry remarks: "The effects produced by iodo-thyrein are similar to those caused by extracts of the whole gland. Patients suffering from cretinism . . . are greatly improved by this method of treatment. . . The metabolism which in these diseases is abnormally low, is raised to the level of health."

In view of the fact that iodine has not been detected in milk by the biochemists, the following statement by Dr. George Dock is of interest: "The disease (sporadic cretinism) is frequently congenital, but the symptoms rarely show themselves, at least well enough to make recognition easy until the second year. This is usually attributed to the protective action of the mother's thyroid secretion in the milk or to a milk diet."

Assuming that the results observed are directly due to the iodine, one may perhaps be permitted to suggest that the condition is one of partial cretinism and that the iodine is used in the formation of iodo-thyrein which is deficient in or altogether absent from the thyreoid of the subject.

Our colleagues of the exact sciences sometimes charge us with arguing from insufficient data. I ask my readers are they justified?

Bibliography.

E. Abderhalden: "Textbook of Physiological Chemistry."

G. Mann: "The Chemistry of the Proteins."

M. S. Pembry: "Recent Advances in Physiology and Biochemistry" (edited by Leonard Hill).

G. Dock: "Modern Medicine," by W. Osler and I. McCrae.

TORSION OF NORMAL FALLOPIAN TUBE.[1]

By R. Marshall Allan, M.C., M.D., F.R.C.S.E.,
Honorary Assistant Gynæcologist, Brisbane Hospital, Queensland.

S.R., aged thirty-five, has had four children. She was admitted with a history of severe pain in the left side of the abdomen after lifting a heavy weight on the previous day. She was doubled up and could not walk. The pain radiated down the left thigh and was accompanied by vomiting. The bowels had been well opened and there were no urinary symptoms. Menstruation had been quite regular and was of the twenty-one days type. The last period had occurred three weeks previously. On palpation there was slight tenderness in the left iliac fossa. Vaginal examination revealed a firm, hard uterus in good position and a soft, cystic mass in the left lateral fornix. When the abdomen was opened the outer half of the left Fallopian tube was found to be twisted in two complete circles from left to right and to form a mass the size of a golf ball. The remainder of the left tube and the left ovary were perfectly normal. The appendages on the right side were also normal. The mesosalpinx on both sides was rather long. There was no effusion into the peritoneal cavity.

Microscopical examination of the specimen by Dr. J. V. Duhig revealed a hæmatosalpinx due to the torsion and there were no signs of extrauterine pregnancy.

While torsion of ovarian cysts and to a much lesser degree of pathological conditions of the tubes are fairly common, there are few recorded cases of torsion of a normal tube. From the literature at my disposal the main points previously noted were all present in this patient, namely, the relationship to a menstrual period, the presence of an abnormally long and free mesosalpinx and the connexion with some muscular effort. Most of the recorded cases have occurred on the right side and the sudden onset of acute pain and vomiting has usually led to a diagnosis of appendicitis. The real condition was not discovered until the abdomen was opened.

Although it is a rare condition it must be remembered when considering the differential diagnosis of acute abdominal crises.

[1] Read at a meeting of the Brisbane Hospital Clinical Society on June 11, 1925.

INJURY TO THE NECK.

By Arthur Watkins, M.B., B.S. (Melbourne),
Griffith, New South Wales.

I was summoned to an urgent case and found a man lying on the floor of a shed which contained a large steam boiler. His mate was holding him by the side of the neck just below the angle of the left jaw.

The mate stated that a piece of glass had entered his neck due to the bursting of the glass gauge. The mate had extracted the piece. As soon as he had done this a great jet of blood flew out of the wound and he at once applied pressure. He was still applying it when I arrived.

The man on examination was very shocked and could not speak above a whisper. His pulse was steady and of good quality, though slow.

I inserted a deep suture into the neck as he lay where he was, applied pressure to the wound and hurried him to hospital. I gave 0.015 gramme (¼ grain) of morphine at once.

The wound closed and healed and no further hæmorrhage occurred, but a swelling the size of a pullet's egg with an expansile pulsation resulted. I concluded that an arterio-venous aneurysm had formed. It is now four months from the accident and he is at work again, complaining of occasional slight vertigo and the aneurysm is evident only on palpation.

I thought the case unique as the three vital structures, carotid artery, jugular vein and vagus nerve were all injured with no grave result.

Reviews.

PATHOLOGY.

The third edition of the well known textbook "Pathology: General and Special," by Drs. Beattie and Dickson, emanating from the Edinburgh school, has recently reached Australia.[1] Both the volumes of the first edition have been incorporated under a single cover and the book is made

[1] "A Textbook of Pathology, General and Special: For the Use of Students and Practitioners," by J. Martin Beattie, M.A. (N.Z.), M.D. (Edin.), M.R.C.S., L.R.C.P. (Lond.), and W. E. Carnegie Dickson, M.D., B.Sc., F.R.C.P. (Edin.). Third Edition. 1925. London: William Heinemann (Medical Books), Limited. Royal 8vo., pp. 1,119 with 499 illustrations in the text and 17 coloured plates from original preparations. Price: 42s. net.

much more convenient. The work has been largely rewritten and in part rearranged. The authors have managed to include much new material and have produced a thoroughly up-to-date textbook. They refer to a great many of the most recent developments in the subject and have culled from the recent literature the essential advances of modern researches.

In the first chapter they deal with cytology. It is a very useful and concise account of the principles underlying cell action. The chapters on the degenerations are well balanced and the question of fatty changes is admirably discussed. There is a special and valuable paragraph on pigmentation which gives much of the modern chemical views on this interesting subject. Calcification, too, is fully discussed; due reference is made to the original researches of Klotz. Necrosis and gangrene are handled tersely in a special chapter.

The general pathology of circulatory disturbance is extremely well arranged, careful clinical correlation is made and the chapter is very well illustrated.

The chapter on inflammation and repair is perhaps one of the best in the book. The stages are clearly described and are illustrated in an inimitable way by R. Muir. A great deal of original work has been embodied into this chapter and it is very easy reading, thus contrasting to many other dissertations on the subject. The granulomata are rightly described as a separate subject. Included under this heading are tuberculosis, syphilis, leprosy, glanders and the streptothrix infections. Although they do not describe them as fully as is usual by authors of textbooks, their account is concise and contains all the salient facts. Further details are given under the pathology of special organs. Neoplasms as would be expected, comprise a large portion of the first part of the book. The authors adhere closely to Adami's classification. They refer to Beard's brilliant thesis on the germ cells in reference to the origin of teratomata. The discussion of the ætiology of tumours is excellent and includes a balanced statement of the various views held. The blastomata are accurately described and illustrated. The osteoclastic origin and non-sarcomatous nature of myeloma (myeloid sarcoma) is emphasized, but it is surprising to find the term mesothelioma still used to describe certain neoplasms which are nowadays more usually classed with the carcinomata. The potential malignant nature of papillomata of the bladder is discussed, although no reference is made to the work of French observers in this field. The illustrations throughout are original and illustrate the various points well.

The chapter on animal parasites has been greatly enlarged and brought up to date. It is excellent and extremely detailed. Dobell's work on the amœbæ infesting man receives full recognition and the authors also borrow from the work of Wenyon on flagellates. Malaria and filaria are accurately and fully described. There is a full description of the various helminths, the weakest part of the chapter being naturally enough that dealing with hydatid disease. They have made full use of the recent advances in the pathology of schistosomiasis and this chapter is the only one in modern textbooks that is up to date in this respect. Altogether this is a most valuable chapter and fills a great need in textbooks on pathology.

The chapter on immunity is short, but is well written and arranged in a logical sequence, so that it reads very well. A special chapter on fever has been added and a series of charts from patients has been included which illustrates very well the various features. This is a very valuable addition and marks a further step towards the correlation of pathology with clinical work.

The special pathology of the heart is excellent and the illustrations of macroscopical lesions are well selected. Arterial disease is discussed in the light of modern advances and can claim to be one of the best descriptions in modern textbooks.

In dealing with the diseases of the blood and blood forming organs the authors first discuss the normal physiology and histology. This expedient is a very valuable one. Full reference is made to modern research on these subjects. There is much original work, especially that of Carnegie Dickson on the bone marrow, incorporated into this chapter. This part of the chapter is excellent and beautifully illustrated from original work. The special diseases of the blood are well arranged and the whole chapter is a very full dissertation on a difficult subject. It is one of the best in the book and should be especially valuable to students. The diseases of the lymphatic system is well done. The work of Longcope on Hodgkin's disease is accorded proper recognition. The spleen is discussed at considerable length, but it is surprising to find so little reference to modern work on hæmolytic familial jaundice. The diseases of the respiratory system are very fully described. The chapter is well arranged and well illustrated, especially that portion dealing with tuberculosis. The arrangement and description of the diseases of the alimentary canal leave little to be desired. Affections of the salivary glands are rather summarily dealt with. The work of Hurst and Rosenow on the stomach is discussed. The authors, however, do not deal with the surgical pathology of this organ as fully as its importance demands. Hernia is also discussed very shortly. Specific inflammatory lesions of the alimentary canal are fully and admirably described. The treatment of hepatic pathology is excellent and the regenerative power of the liver cell is emphasized.

Diseases of the thyreoid are dealt with shortly. This chapter is one of the weakest in the book. Little reference is made to the modern advances made at the Mayo Clinic. The development of hyperthyreoid symptoms associated with some adenomata is not mentioned. The ætiological factors, too, are dismissed summarily. The pathology of the other endocrine glands is weak, although mention is made of the majority of the salient points. The diseases of the genito-urinary system are dealt with at length and are admirably arranged and well illustrated. Here, as elsewhere, the surgical aspects are not well done.

The pathology of the renal neoplasms is poor; it is astonishing to find modern pathologists neglecting the work of von Stoerk and many others on the Grawitz tumours of the kidney. These tumours are described under the old name of hypernephromata and the erroneous belief that they arise from adrenal rests is still adhered to.

The pathology of the central nervous system is very full and is a well considered dissertation on a very difficult chapter of pathology. It is up to date and includes the greater portion of the recent advances.

As is to be expected the chapters on the diseases of bones and joints are excellent. These chapters are from the point of view of surgical pathology the best in the book. The book is one of the best productions in English yet produced. It is concise and up to date; it contains all the important facts and is well arranged. It is especially valuable for students and practitioners. It represents a definite attempt to correlate pathological conditions with clinical observations and in this the authors have followed the whole trend of modern pathological teaching.

A MANUAL OF GYNÆCOLOGY.

Dr. S. J. Cameron's "Manual of Gynæcology" which has now run into its third edition, represents the teaching of the Glasgow school in gynæcology.[1] In the new edition the author has embodied the latest work on the ductless glands and their relation to menstruation and on the pathology of ovarian tumours. The book maintains the standard of the previous editions. The type is large and easily read while the illustrations are clear. The new work that has been introduced has required the addition of ninety pages to those of the second edition.

[1] "A Manual of Gynæcology: For Students and Practitioners," by Samuel J. Cameron, M.B., B.Ch. (Glasgow), F.R.P.S.G.; Third Edition; 1925. London: Edward Arnold and Company. Demy 8vo., pp. xix. + 651, with illustrations. Price: 25s. net.

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Combating an Infection.

On another page of this issue the reader will find a letter from Dr. W. Kent Hughes on the measures that have been adopted by the medical officers of the Health Committee of the City of Melbourne in order to check the spread of epidemic poliomyelitis. In our issue of July 25, 1925, we published a short note on the same subject. On May 21 of this year a conference of the municipal medical officers of health took place to consider the best means to combat the outbreak. Previously Dr. Jean MacNamara had been appointed by the Health Committee to trace those who had had the disease with a view to secure supplies of immune serum. The municipal medical officers of health appointed a strong advisory committee consisting of Dr. W. J. Penfold, Dr. C. H. Kellaway, Dr. F. V. Scholes, Dr. Reginald Webster and Dr. Jean MacNamara. A report has now been issued by the Medical Officer of Health of the City of Melbourne from which the present position can be gathered. It appears that in 1918 there was an epidemic of poliomyelitis in Victoria. The number of infections notified was three hundred and three. There were twenty-one deaths, that is 7%. During the following years the number of infections notified were two, five, twenty-seven, twenty-three, seven and twelve. The number of deaths attributed to the disease each year was out of all proportion to the number of cases notified. In the six years from 1919 to 1924, no less than twenty certificates of death from this cause were received. A disease is usually somewhat less fatal after it has lost its epidemic character. If it be assumed that the mortality after the 1918 epidemic was 5%, the number of infections should have been four hundred up to 1924, instead of seventy-six. A reasonable inference would be that only a few of the infections were notified. Early in 1925 some alarm manifested itself on account of the apparent increase of the number of infections in Victoria and other States, in view of the fact that a serious epidemic existed in New Zealand. It is possible that parents sought medical advice more readily than they had done in the previous years. It is also possible that medical practitioners, having had their attention called to this disease, were on the look-out for atypical infections. Be this as it may, in the first six months of the year ninety-three infections were notified. There were eleven deaths, which yields a case mortality of 11.9%. From the information contained in Dr. Sinclair's report it appears that the outbreak is practically confined to the metropolitan area, although the seventy-four patients resided in no less than sixteen municipalities or shires. If the date of the reception of the notification corresponds to the date of infection, the maximum was reached in May. Dr. Sinclair points out, however, that some of the notifications had reference to infections which occurred in the earlier months.

The cause of epidemic poliomyelitis is probably the globoid body of Noguchi and Flexner. Hitherto no exact knowledge has been gained in regard to the method of transmission of this virus to susceptible persons. The hypothesis that the stable fly *Stomoxys* acts as the vector of the virus is no longer entertained by epidemiologists. As is the case in the majority of infective processes, direct conveyance of infection from a patient to a susceptible person probably takes place. It is true that in extensive epidemics in an overwhelming majority of families only one child has apparently been infected. Two explanations for this have been offered. The first is that the protective mechanism, including a natural insusceptibility to the disease on the part of the average child and the physiological obstacle offered by the intact chorioid plexus to the passage of the virus, may be effective. The second is that for every child attacked by an acute febrile process leading to paralysis there are many who respond to the infection by a mild illness not characterized by paralysis. It is obvious that the names by which this disease is known, are misleading. Infantile paralysis is doubly wrong, because the infection may affect children,

adolescents and even adults and because the paralysis may be very slight or absent. Poliomyelitis is not a good name, because the infection may involve the cerebral meninges, the grey matter of the brain or of the *medulla oblongata* or the nervous system may be but slightly affected. There are obvious objections to the term "Heine-Medin" disease; men's names should not become the labels of diseases. For the sake of clarity and to avoid confusion of thought it is desirable to have a name that would connote the infection rather than the commonest pathological lesion.

The Health Committee of the City of Melbourne is endeavouring to meet the situation by lending assistance in the early diagnosis and prompt treatment of every child affected. The prophylaxis of this disease is not satisfactory. No practical means for the detection of virus carriers have been discovered and in consequence the attack on the source of the infection is difficult or even impossible. The next best is to seek the manifest sources of infection and to render them harmless to the community as rapidly as possible. That this can be achieved in the majority of instances by the injection of the serum of patients who have recently recovered from a frank attack, has been proved several years ago. According to authorities like Amoss, Chesney and Zingher at least fifty cubic centimetres should be injected partly into the spinal theca and partly into the veins. Dr. Reginald Webster carried out some important investigations in 1918 on the treatment of poliomyelitis with the serum of convalescents and of children who had suffered from the disease and had recovered. He laid emphasis on the danger of subjecting the spinal or cerebral meninges to the damaging effect of normal or immune serum; even saline solution may facilitate the passage of the virus to the cord or brain. It is therefore essential that only a powerfully immune serum should be used. Dr. Webster suggested that five years since the attack might be regarded as the limit. This limitation of what must be a scarce supply is unfortunate. But until a method is discovered of detecting carriers of the virus and until it becomes feasible to attack the virus thus discovered in the fauces or other tissues of the human host, early diagnosis and prompt treatment must remain the best weapon to employ.

Current Comment.

THE TREATMENT OF RAYNAUD'S DISEASE.

Disorders in the action of the sympathetic nerves controlling the blood vessels of the extremities have given rise to the entity known as Raynaud's disease. The disease is characterized by intermittent attacks in which the limb or a part of the limb becomes blanched. The blanching is followed by cyanosis and subsequently hyperæmia occurs. The attacks are accompanied by acute pain and may become so frequent as to interfere with the nutrition of the part and lead to gangrene. To relieve this condition various measures have been devised, but at the present time surgical interference appears to offer the most satisfactory relief of symptoms. Leriche contends that the sympathetic vasomotor nerves reach the terminal arterioles by travelling along the adventitious coat of the arteries. He has, therefore, proposed a periarterial sympathetectomy for the relief of the symptoms of Raynaud's disease. It is, however, not certain that the vasomotor nerves travel from their sources to their distribution along the arterial sheaths, for there is some evidence to show that nerve fibres leave the ordinary medullated nerves of a limb to joint the arteries at various points. Thus in a periarterial sympathetectomy performed in the thigh the vasomotor nerves supplying the blood vessels of the foot are not necessarily divided though a partial effect may be obtained by such a procedure. The clinical results of Leriche's operation indicate that the anatomical basis upon which it has been devised is not sound, though it is to be admitted that in many instances a desirable effect is obtained. A more certain method of dealing with the sympathetic nerves supplying a limb is to divide the postganglionic fibres of the sympathetic ganglia before they reach the blood vessels.

Lumbar sympathetic ramisection has beeen carried out by Dr. A. W. Adson and Dr. G. E. Brown[1] in the treatment of a Jewish girl, aged sixteen years, who was suffering from Raynaud's disease and who had had sore feet for six or eight years. The patient also complained of soreness and sharp pains in the ankles and shooting pains in the legs. These symptoms were associated with increasing coldness of the feet. For several years the patient had noticed that her feet became white on rising in the morning and that they became blue and mottled after exercises. During cold weather the pain and soreness were aggravated and the cyanosis increased. The hands were also affected. Superficial painful ulcers had developed over the malleolar surfaces of both feet. All vessels were palpable excepting

[1] *The Journal of the American Medical Association*, June 20, 1925.

the left *dorsalis pedis* artery which, however, could be felt intermittently. Oscillometer readings with the Pashon oscillometer revealed slight pulsation below the ankles and definite pulsation above them. The operation carried out by these observers was a bilateral ramisection of the second, third and fourth lumbar ganglia together with the removal of the ganglia themselves. In addition the outer sheath of the common iliac artery on both sides was stripped for a distance of about five centimetres. The result of this procedure was favourable, but the authors do not state to which part of the procedure they attribute the result. Royle has shown that definite vasomotor changes follow the operation of ramisection as described by him. Many of his patients have obtained complete relief from chilblains which are usually regarded as being related to Raynaud's disease. The removal of the lumbar ganglia appears to be an unnecessary and drastic procedure and the stripping of the iliac arteries to be duplicating the process carried out when the sympathetic nerves are divided. The idea of treating Raynaud's disease by sympathetic neurectomy arose from observations made in five cases of spastic paraplegia. After the operations had been carried out it was found that the lower extremities became dry and hot and that the skin temperature in the feet increased from 2° C. to 70° C.. Increase in the heat production and radiation of the feet from two hundred to nine hundred was likewise noticed. This evidence of increased blood flow persisted during the entire postoperative observation period which varied from three to six weeks. The operation carried out by Drs. Adson and Brown for this patient with Raynaud's disease led to a satisfactory result. Following the operation the feet were pink and warm, skin temperature was increased 3° C. in the right foot and 4° C. in the left and the skin was dry. There was a sharp transition in the temperature line, about fifteen centimetres below the iliac crest. Drs. Adson and Brown regard the treatment as successful in that there was evidence of vasodilatation with increased arterial flow and relief from the subjective and objective manifestations of the disease.

HARD WATER AND URINARY CALCULI.

A URINARY calculus has been described as an agglomeration of crystals held together by a cement substance. It is commonly held that the centre of a urinary calculus is occupied by a nucleus of organic matter around which mineral salts have been deposited. Two factors are necessary—the presence of crystals in the urine and a colloidal substance to bind them together. The crystals are the abnormal and insoluble products of tissue change or they may be a normal product present in such excess as to be insoluble in the urine. Among the factors commonly supposed to operate in the causation of urinary calculi is the ingestion of hard water. Thomson Walker states that hard water influences the production of calculi by supplying an excessive quantity of calcium salts.

This question has recently been investigated by Dr. John T. Myers.[1] Dr. Myers states that water is usually considered soft if it carries in solution less than seventy-five parts of hardness expressed in terms of calcium carbonate. Water is moderately hard if it contains between seventy-five and two hundred parts per million of hardness and very hard if the figure is over two hundred. He refers to the opinions expressed by many observers in regard to the influence of hard water in causing calculi in animals and to Abderhalden's identical view in regard to man. On the other hand he points out that Keyser holds an opposite view as a result of his experiments on rabbits. Keyser holds that lithiasis is due to changes in hydrogen ion concentration or in the colloidal equilibrium of the urine and not to increased intake of calcium. He offered the suggestion that a protective mechanism might exist in normal urine and that if something occurred to interfere with this equilibrium, precipitation of the crystallizable material resulted. Dr. Myers studied the question by investigating the rate of concretion formation in animals living on hard water as compared with those living on soft water. He used oxamide as a urinary irritant and fed it to two groups of six rabbits. One group of six rabbits received distilled water with their diet of oats and carrots and the other group received hard water containing 519.2 parts per million of calcium carbonate and thirteen parts of magnesium carbonate with the same diet. No definite concretions were found in the rabbits of either group after periods varying from thirty-one to one hundred and eight days. In two of the rabbits fed on hard water inflammation of the bladder was found together with some precipitated solid matter in the urine which was not aggregated. In another series Dr. Meyers placed sterile glass beads four millimetres in diameter in the left kidney of each of four dogs. Slight encrustation was found on the bead of one dog fed on hard water which died forty-seven days later, and encrustation four millimetres thick was found on the bead of a dog fed on distilled water which was killed two hundred and fifteen days later. Glass beads were placed in the kidneys of twenty-four rats. The animals were fed on high and low calcium diets with hard and soft water. In no instance was any salt deposition found on the bead. Cartilage blocks were placed in the bladders of rabbits fed on similar diets. The largest concretion came from a rabbit fed on hard water with a high calcium diet and the smallest bead from a rabbit fed with a low calcium diet and hard water. Dr. Myers concludes that no evidence was found in his experiments that hard water is an ætiological factor in urinary concretion formation. The series of experiments is small and no definite conclusions can be formed from them. Moreover, Dr. Myers does not record the hydrogen ion concentration of the urine, an important factor, nor does he make any mention of having estimated the calcium or magnesium content of the blood in any of the animals under experiment.

[1] *The Journal of Infectious Diseases*, June, 1925.

Abstracts from Current Medical Literature.

THERAPEUTICS.

Influence of High Temperature on Preservation of "Insulin."

E. Trocello and A. Cruto (*Journal of Tropical Medicine and Hygiene*, March 2, 1925) adduce evidence to show that solid rather than liquid "Insulin" preparations are the more suitable for transport to and use in the heat of the tropics. It is well known that the ordinary liquid product rapidly loses potency and after six weeks in India retains approximately only one-fifth of its hypoglycæmic power. This observation is borne out by the laboratory experiments of Trocello and Cruto. The liquid "Insulin" commonly deteriorated under conditions of high temperature, especially if prolonged. Solid "Insulin," on the other hand, is very resistant to high temperatures and retains its hypoglycæmic power for considerable lengths of time. In one experiment it was found to remain unimpaired in strength after exposure to a temperature of 42° C. for thirty-five days.

Chronic Urinary Infection.

J. Thomson-Walker (*The Practitioner*, March, 1925) discusses the treatment of chronic urinary infection with the *Bacillus coli*. Diuretics such as barley water and diuretic waters of Vichy, Vittel and Contrexeville, also fresh infusions of the dried leaves of buchu or *uva ursi* are useful, but more especially in the acute infections. Two to three litres of fluid should be taken daily as a rule. Alkalis, such as the acetate and citrate of potash and bicarbonate of soda, may be given to relieve symptoms and to neutralize the acid toxins of the *Bacillus coli communis*. Such treatment does not destroy nor even inhibit the growth of this organism. Hexamine is the most valuable urinary antiseptic; its action depends on the liberation of formaldehyde by the acid urine. It is best prescribed alone in a draught of water between meals. If given with an acid it may be split in the stomach and the resulting free formaldehyde may irritate the gastric mucosa. The good effect of hexamine depends largely on the length of time the formaldehyde is in contact with the infecting organisms; hence it is of little value in kidney disease or disease of the renal pelvis or where there is great frequency of micturition. Hexamine may aggravate the symptoms when the bladder is acutely inflamed. Methylene blue, salol and sandalwood oil are of value when the urine is alkaline. The use of intravenous injections of "Mercurochrome" or gentian violet (one cubic centimetre of a 0.5% solution per kilogram body weight) is still under trial. Vaccines (autogenous) may be useful in first attacks (25 to 2,500 millions once a week). Bladder washing may complete the cure in selected cases. If the urine is alkaline a preliminary washing may be used and this should be followed by antiseptic washing. For the preliminary washing acetic acid (British Pharmacopœia) should be employed if the urine is alkaline and sodium bicarbonate if it is acid. The necessary quantity of the former is two cubic centimetres to a litre of water and of the latter seven grammes to a litre. For the antiseptic washing silver nitrate may be used in a solution of one in fifteen thousand, or potassium permanganate one in ten thousand, or "Mercurochrome" one in ten thousand or boracic acid in a half saturated solution. Renal lavage and suprapubic cystotomy with continuous irrigation have their place and in all cases it is advisable to use bowel antiseptics and to attend to the constipation.

Meningitis.

C. Worster-Drought (*The Lancet*, March 28, 1925) gives a *résumé* of the modern treatment of meningitis. After describing the best methods for the symptomatic treatment of the vomiting, headache, insomnia and so forth, which are accepted features of the disease, he gives details for the performance of cervical, cistern, sphenoidal and ventricular puncture. Regarding serum therapy, the writer states that not only must the appropriate serum be introduced directly into the subarachnoid space and the dose repeated daily, but when the systemic infection is severe, the serum must also be administered by the intravenous route in doses up to two hundred cubic centimetres or even more; Herrick is quoted as making use of doses up to six hundred cubic centimetres. The diagnosis once made, the administration of serum should commence at the earliest possible moment. It should be polyvalent for the organism obtained by lumbar puncture; later, if the organism can be actually typed, as is not infrequently the case in pneumococcal and meningococcal infections, the appropriate univalent serum must be used. The serum is given after lumbar puncture either through a syringe or by using a funnel and rubber tube. The quantity of serum should be five cubic centimetres less than that of the cerebro-spinal fluid previously withdrawn. The initial dose in the case of an adult should be from thirty to fifty cubic centimetres, followed by daily doses of thirty cubic centimetres for four days or until the symptoms appear to diminish in severity. Smaller dosages of serum, commencing with five cubic centimetres at one year, are given to children. Serum therapy can be discontinued only when no organisms are recoverable from the patient's cerebro-spinal fluid; daily lumbar puncture must then be performed until the fluid appears quite clear. It should be allowed to escape for as long as it continues to run away of its own accord. A reappearance of symptoms means the resumption of serum treatment. Precautions against anaphylaxis must be taken if the treatment is recommenced after an interval of more than eight days. The value of hexamine in the treatment of meningitis is very doubtful and the practice of injecting such substances as "Lysol" and protargol into the subarachnoid space has nothing to recommend it.

Dietary Control of Nephritis.

Martha Koehne (*The Journal of the American Medical Association*, April 11, 1925) gives full details for the regulation of the diet of the nephritic patient. The caloric intake should be such as to maintain the body weight at a slightly lower figure than the normal for the individual and the protein, sodium chloride and fluid intake should in each instance be suited to the ability of the patient to excrete them or their end products. Œdema, when present, is treated by the adjustment of the sodium chloride and fluid given and by controlling the unnecessary production of the end products of protein metabolism or of a too highly acid urine. But no diet is adequate unless regulated in accordance with modern principles of nutrition, nor unless it secures the regular supply of substances, such as calcium, iron, iodine and the vitamins which are often deficient in the food of so-called healthy persons. The better the quality of the proteins, the less of them needed to maintain growth and secure nitrogen equilibrium; animal proteins (fish, poultry, eggs *et cetera*) are preferable to those of the cereals, legumes and fruits in this regard. Two-thirds of a gramme per kilogram of body weight is necessary to maintain the nitrogen balance and then only if the best of animal protein be used. In patients with acute nephritis the amount may be reduced below two-thirds of a gramme, but never for longer than ten days, for ultimately the body proteins will be used to supply the deficiencies of the food. Unless the blood urea concentration rises above fifty milligrammes per cubic centimetre, a protein supply of one gramme per kilogram of body weight should always be maintained. As to carbohydrates preference should be given to base forming rather than to acid forming fruits and vegetables. Of the former potatoes and most fruits are suitable; but cereals and some fruits and vegetables contain oxalic and benzoic acids which the body cells cannot utilize and which strongly increase the acidity of the urine. No proofs are yet available that the kidney has greater difficulty in excreting concentrated than diluted fluids. In acute nephritis fluids should be restricted to the amount of one litre *per diem* if œdema be present; in chronic nephritis on the other hand if no œdema occur, an amount as high as two and a half litres may be given each day. Salt free diets should be

reserved for very acute forms of nephritis and for periods of fourteen days only, since salt starvation leads in itself to œdema of another type which may cause death. Stimulants are bad for the young, especially in acute nephritis, in older people they may be used with discretion to prevent the misery their sudden deprivation may arouse. Condiments and spices are always irritating.

UROLOGY.

Fistula after Nephrectomy for Renal Tuberculosis.

G. MARION (*Journal d'Urologie Medicale et Chirurgicale*, January, 1925) shows what precautions should be taken at the time of operation to prevent fistula after removal of a tuberculous kidney. The incision should always be generously large and later should be extended backwards or forwards if necessary. The enucleation should be undertaken prudently, the operator avoiding injury to the proper capsule of the kidney, which often contains tiny tuberculous foci or granulations. When any part of the kidney surface indicates that a pus-containing pouch is immediately beneath, the utmost care should be taken as the capsule is easily broken. Unless it is decided that a complete nephro-ureterectomy is to be performed, the ureter should be ligated and sectioned high up, just below the renal pelvis. Both ends of the cut ureter are carefully cauterized. The operation is completed by removal of all the perirenal fat, which may be infected by lymphatics traversing it. Should purulent liquid infect the tissues in spite of all precautions, the wound should be left in good part open and the large cavity should be filled with gauze. It is surprising how well and quickly the wound will heal under these conditions and the danger of diffusion of the infection in a closed wound is averted. In the event of the formation of a simple tube-like post-operative fistula, not leading into a cavity, a stick of pure silver nitrate is placed in the fistula and left there. Hot saline foments are placed over the surface to diminish pain and vesication. At the end of four days it is possible to extract from the fistula a cylindrical eschar. The wall of the canal is thus left in such a state that rapid healing will follow.

Treatment of Urinary Incontinence.

R. FRANZ (*Wiener Medizinische Wochenschrift*, May 30, 1925) describes three varieties of urinary incontinence. The first group is one in which the sphincter is intact but does not function properly. Included in this are cases of reflex incontinence due to nervous disease such as *tabes dorsalis* and myelitis. A second group includes cases in which the sphincter has been damaged especially following labour or a gynæcological operation. A much rarer group comprises patients whose sphincter is intact and functions normally, but who nevertheless suffer from incontinence. The condition in these individuals is due to congenital abnormalities such as double ureter or vesico-vaginal fistulæ with injury to the sphincter. Patients belonging to the first group should be treated by conservative measures. When the sphincter has been damaged operation is indicated. The urethra and base of the bladder must be freely exposed and the muscular and fascial layers reinforced around the urethra. Interposition of the uterus may be employed in patients at the menopause. In the third group abnormal ureters should be implanted into the bladder and fistulæ closed according to the usual methods of technique.

Decapsulation in Nephritis.

W. C. QUINBY (*Journal of Urology*, March, 1925) having been asked by a medical colleague to try the effect of decapsulation of the kidneys in three different kinds of nephritis, reports that no favourable effect was noted in any. The cases were one of hæmorrhagic nephritis, one of acute tubular nephritis from bichloride of mercury poisoning and one of chronic glomerular nephritis with œdema.

Impotence in Young Men.

W. J. WALLACE (*Journal of Urology*, February, 1925) discusses the question of impotence occurring in the young man whose sexual organs are in an apparently normal state. In such cases it has been customary to look upon the condition as functional. The writer, however, has reached the conclusion that impotence in these persons is never purely psychic in origin. Underlying every case, if examination is thorough enough, will be found some pathological condition which is responsible for the patient's psychic state and no permanent relief will be afforded until this condition is corrected. All impotence in young men falls into one of three classes which are designated atonic, inflammatory and syphilitic. In the first class are young men who come to the medical man claiming that they have never indulged in coitus, but that the penis is always cold and that there is a sensation of burning deep in the perineum. The patient is worried to excess by the occurrence of nocturnal emissions. There may be accompanying urinary symptoms, real or imaginary. The patient will be found to be a confirmed masturbator in a generally asthenic physical state. On examination the prostate and seminal vesicles are felt to be enlarged and flabby and slight pressure on the prostate produces a free flow of fluid, the muscle guarding the orifices of the ducts failing to contract sufficiently to retain it. Prostatorrhœa thus occurs easily and distresses the patient. The treatment is massage of the prostate and vesicles, passing of large sounds and deep instillations of silver nitrate combined with a correction of the habits of diet and exercise. The inflammatory type is the outcome of long standing inflammation which has given rise to a definite lesion in some part of the genital apparatus. This must be found by the urologist and corrected. The third or syphilitic type exists more commonly than is generally supposed. Most frequently the impotence arises from involvement of the central nervous system and may be suspected when prostatic massage or the passage of a cystoscope produces no pain. Occasionally the cause is peripheral with gummatous infiltration in various parts around the posterior portion of the urethra. Besides the usual antisyphilitic treatment it is extremely important to correct any local pathological conditions which have resulted from the infection.

Methylene Blue Instillations in Tuberculous Cystitis.

H. BLANC (*Journal of Urology*, March, 1925) reports very favourably on the effect of instillations of methylene blue whether after nephrectomy in unilateral renal conditions or in inoperable bilateral lesions. The beneficial action of methylene blue taken by mouth as a urinary antiseptic and sedative has long been known. When it is placed directly into the bladder its action is stronger on vesical lesions, cystoscopic examination revealing an intense and lasting staining on any breach whatever in the continuity of the mucous membrane. Its affinity for chromatin in the living state explains its bactericidal action and its remarkable affinity for the axis cylinders of nerve fibres explains its analgesic action. The dye is best injected with normal saline solution in a strength of 1%; a slightly weaker solution may be used in acute conditions. If the bladder is very dirty, the instillation is best preceded by gentle irrigation with warm saline solution. Ten to fifteen cubic centimetres are injected and this is repeated every two or three days according to results. With the dye instillations alternate injections of "Oleogomenol" may be used with advantage.

Radium in Carcinoma of the Bladder.

B. S. BARRINGER (*Journal of Urology*, February, 1925) recognizes for descriptive purposes two broad categories of bladder carcinoma, papillary carcinoma and infiltrating carcinoma. Of twenty-three papillary carcinomata the tumour was removed by radium applied cystoscopically in twelve instances and suprapubically in three, while in six the result has not yet been determined; two patients are dead. Of sixty-one infiltrating carcinomata the tumour was removed by radium applied cystoscopically in six instances and suprapubically in twelve, while the result has not been determined in thirteen cases; thirty patients are dead. A large majority of all the tumours in this series involved the trigone and bladder neck. The actual operative mortality of suprapubic implantation of radium in infiltrating carcinoma is less than 2%.

British Medical Association News.

SCIENTIFIC.

A MEETING OF THE NEW SOUTH WALES BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the B.M.A. Building, 30-34, Elizabeth Street, Sydney, on June 25, 1925, DR. R. B. WADE, the President, in the chair.

Estimations of Metabolism and Disease.

DR. F. S. HANSMAN read a paper entitled: "Estimations of Metabolism in Its Relation to Disease" (see page 213).

DR. H. S. H. WARDLAW thanked the President for having invited him to be present at the meeting. The subject was one of the greatest importance and had been put before them in a most interesting fashion. He emphasized the necessity of ascertaining the actual figures for Australia. They had been using borrowed figures which was justifiable for a time, but it was necessary to determine the actual figures at the earliest possible moment. Boothby and Sandiford found it necessary to carry out about 25,000 estimations before they had committed themselves. This revealed the importance they had attached to these measurements. Dr. Wardlaw referred to the article published in THE MEDICAL JOURNAL OF AUSTRALIA by Dr. C. E. Corlette in which he had calculated the metabolic requirements of people in Australia from the point of view of climatic conditions. He had adduced evidence to show that the metabolism might be lower in warm parts than in a more temperate climate. Later he, the speaker, had made some measurements of the total metabolism of students in Sydney. The basal metabolic rate, however, had not been estimated. His figures on the whole had borne out Dr. Corlette's contention. Some work had been done in Brazil which showed that the basal metabolic rate of persons in warmer climates was lower than that of those in temperate climates. He congratulated Dr. Hansman on taking up this work which would enable them to set up a standard for Australia and thus give definite figures to replace the borrowed figures on which they could not work indefinitely.

PROFESSOR A. E. MILLS congratulated Dr. Hansman on his excellent paper and on his temperate expression of opinion, especially in connexion with the use of endocrine glands. He had found the estimation of the basal metabolic rate of immense service in dealing with thyreoid disease or suspected thyreoid disease. He referred to the case of a woman who had suffered from goitre and tachycardia. The clinical diagnosis of thyreotoxic goitre had been made, but when it was discovered that the basal metabolic rate was normal it had been clear that the tachycardia was not of that origin. He agreed with Dr. Hansman that while the use of iodine in exophthalmic goitre or thyreotoxic goitre was often followed by wonderful improvement, he had never experienced what he could call cessation of the manifestations of the disease. The basal metabolic rate showed that the disease was not at an end after the symptoms had been alleviated by iodine. He contended that laboratory methods were absolutely essential in the practice of medicine. He considered that patients with thyreotoxic goitre on whom it was proposed to operate, should be sent to hospital and admitted to a medical ward in the first place. He quoted the instance of a patient who had been admitted to hospital for thyreotoxic goitre. This patient had lost weight on a diet of 3,000 calories. On increase of the calories to 3,500 he had continued to lose weight. Finally on 4,500 calories he had started to gain weight. Later the patient had been sent to a surgeon who operated with beneficial results. Death indubitably would have resulted had the patient been sent to the surgeon in the first instance.

In regard to the use of endocrine glands, Professor Mills stated that an estimation of the basal metabolic rate gave indications as to those patients who were likely to be benefited by glandular treatment and this meant more correct diagnosis. One other aspect of the subject that had been alluded to, was the use of combined endocrine secretions. He referred more especially to the combination of pituitary and thyreoid extracts. He was at a loss to understand the action of such a combination nor did he know the indications for the combined use of the two drugs. He would have liked to have heard Dr. Hansman's opinion on the indications for pituitary medication.

DR. C. B. BLACKBURN, O.B.E., said that he wished to add his quota of thanks to Dr. Hansman. He was especially interested because Dr. Hansman had previously been his house physician. They were indeed fortunate to have a man among them with such a temperate vision. In regard to the use of pituitary extract his own experience had not been very satisfactory. He referred to a patient with pituitary deficiency in whom he had tried pituitary extract alone, extract of pituitary and thyreoid and thyreoid alone. The patient had done best on thyreoid alone. Dr. Blackburn asked Dr. Hansman whether he knew of any definite evidence of benefit following the oral use of extract of pituitary gland.

DR. C. E. CORLETTE thanked Dr. Hansman for his highly interesting paper. He welcomed him back to Sydney because he anticipated that he would continue to carry out work on the basal metabolic rate in a systematic fashion. In THE MEDICAL JOURNAL OF AUSTRALIA, February 17, 1923, Dr. Corlette had published a paper: "On Some Relations of Climate, Weather and Fat Covering to Metabolism." In the course of this paper he had pointed out that they had no figures for the measurement of metabolism of the people of Australia. He had shown that there was good reason for suspecting that climate altered basal metabolism standards. If it were true that climate induced a difference in the level of metabolism, then the presence or absence of a layer of superficial fat would also make a difference. The layer of fat would be like a tropical environment. By giving thyreoid much of the fat was removed, the person was placed in a less tropical environment and the result was that the metabolism tended to rise. He suggested that this was probably part of the explanation of the benefit following the giving of thyreoid extract. He had suggested in his paper that the possession by women of a relatively larger quantity of superficial fat in certain regions of the body—breasts, thighs, arms, neck—might form some part of the explanation of the lower metabolism of women.

DR. O. A. DIETHELM expressed his appreciation of Dr. Hansman's paper. He wished to make a few remarks on the clinical aspects of the work. In simple adenoma of the thyreoid, especially after previous operation, it was unwise to undertake the second operation without one at least or better several measurements of the basal metabolic rate. This measurement should also be made in cases of early suspected hyperthyreoidism which were often very difficult to diagnose. It should be remembered, however, that the basal metabolic rate might be increased in many other conditions as well and was not in itself a certain clinical index of hyperthyreoidism. For this reason he held that the estimation of the basal metabolic rate should be supplemented by other tests before hyperthyreoidism was diagnosed. He referred to Loewe's adrenalin eye test and gave a short description of it. He also referred to Goetsch's skin test in which the characteristic appearances and signs were noted after the injection of 0.5 cubic centimetre of a 1 in 1,000 adrenalin dilution. A whitened area appeared surrounded usually by a red areola. In early hyperthyreoidism a bluish-grey or lavender discoloration of the whitened central area appeared within half an hour and spread within two hours as far as the areola, while that in the centre disappeared. With this was associated an early rise in blood pressure, an increase in pulse rate and a general increase in the symptoms and signs suggesting hyperthyreoidism. He would not be inclined always to diagnose this condition from the basal metabolic rate alone; in fact, it would not be possible to do so in many early cases.

In regard to the use of iodine Dr. Diethelm agreed that Lugol's solution did good in an exophthalmic goitre. It was particularly useful in the various crises, but the benefit was largely temporary. When the medication was interrupted the symptoms were likely to recur and might

even become worse. It was most useful before operation indeed it was in this connexion that the best results of iodine administration in exophthalmic goitre had been obtained in preventing postoperative crises and so reducing the risk.

He spoke of a patient whom he had been fortunate enough to see at Abbott's Clinic at Chicago. The arteries of the thyreoid gland had been tied and the patient had subsequently become insane and had developed most extreme signs of hyperthyreoidism. The basal metabolic rate had been 94% and he had been taking a diet representing thirteen thousand calories a day—an almost inconceivable amount—and yet on that he had still lost weight. On iodine treatment after one month the diet had been reduced to one of seven thousand calories and the basal metabolic rate had been 60%. At this time the patient had been fairly rational and was putting on weight.

Kendall's thyroxin was very active in minute doses. It was probably a close approximation to the complete thyreoid hormone. He pointed out, however, that Kendall's formula and his theory were open to argument. Kendall's theory was that the function of thyroxin was to split off the amino groups out of amino acids. In this way it helped the supply and formation of ammonia in the body and this deaminization was part of the function of the thyreoid. This, however, did not explain all the clinical facts. For example, under thyreoid medication the obese patient might lose fat. In the reduction of obesity the nitrogenous fats were the last to go. If Kendall's theory was correct, the nitrogenous fats would be the first to go. He spoke of the increase in metabolic rates obtained by even small doses of thyroxin in myxœdema and cretinism. In exophthalmic goitre even the smallest dose might do harm.

In conclusion Dr. Diethelm stated that it seemed reasonable to suppose that another explanation might be given that the thyreoid hormone—a compound rich in iodine—acted by stimulating oxidation by increasing as a ferment the power in the blood to oxidize phosphates. If this view were accepted, it would explain many phenomena that could not be explained too satisfactorily by Kendall's views.

Dr. J. S. Purdy, D.S.O., complimented the reader of the paper on the excellent way in which he had dealt with organotherapy, of late a field favoured for the exploitation of glandular extracts by proprietors of certain preparations for which extravagant claims were made by certain trade journals.

One of the illustrations reminded him of an interesting case, that of a eunuch in the retinue of the Khedive's mother whom he had seen at El Tor, Sinai Peninsula, in the Hedjaz Pilgrimage Camp in 1906. This man had suffered from a severe attack of pneumonia. In Dr. Purdy's opinion he might have been less severely ill had he previously had a course of treatment with thyreoid gland. He also discussed the question of the basal metabolic rate of healthy Australians and emphasized the need for a systematic investigation to secure accurate and definite information in this regard.

Mr. Hugh R. G. Poate said that prior to the lecture he feared that his own basal metabolic rate would be on the *minus* side, but owing to the admirable manner in which the subject had been presented, he felt that it was rather on the *plus* mark. He thought that the basal metabolic rates in the tables shown would explain the voracious appetites of children. The basal metabolic rate did not necessarily indicate the severity of an illness. This had been the experience of most, except when a high reading was obtained. A patient might be very ill with a low basal metabolic rate, while another with a high reading would not present a serious aspect. Surgeons were interested chiefly in connexion with exophthalmic goitre. It was true that no set of figures for Australians was available. At the same time he thought that by using American figures the clinical results would give a rough idea of their applicability to Australian conditions. He held that the treatment of exophthalmic goitre afforded excellent opportunity for team work. It was his custom always to consult with a physician in these cases. As a rule he had at least two estimations of the basal metabolic rate made before deciding on operation. It was most unwise to operate during the upstroke of an acute exacerbation. It was advisable to tide the patient over a crisis and select a favourable moment for operation. Disasters in operation had occurred in the past not from lack of judgement, but from lack of understanding of the condition of affairs. Work on the basal metabolic rate had been done by Miss Ross and under Dr. Hansman's direction at the Royal Prince Alfred Hospital it would go ahead with great vim. Mr. Poate also referred to toxic adenoma of the thyreoid gland and to the difference between this condition and exophthalmic goitre. He illustrated his remarks in regard to the combination of enlargement of the thyreoid with hypothyreoidism by reference to a patient, aged thirty-five years, who had suffered from enlargement of one lobe of the thyreoid gland and whose basal metabolic rate had been — 15. No improvement had resulted from general treatment, but three months after removal of the enlarged lobe the basal metabolic rate had been normal. Since operation the patient had led a normal life.

Dr. V. R. Woodhill referred to observations which had been made in regard to a hundred patients suffering from lesions of the thyreoid. It had been found that the clinical manifestations varied almost *pari passu* with the basal metabolic rate. Moreover, the pulse pressure corresponded almost exactly with the basal metabolic rate and diminished with it. Estimations of the basal metabolic rate every two or three days were of the greatest service in judging the effects of treatment. Dr. Woodhill then spoke of the preparation of iodine of the French codex. It consisted of potassium iodide in a 10% alcoholic solution. Excellent results had been obtained with its use at Saint Bartholomew's Hospital. The same statement held good in regard to work done at the Mayo Clinic. It was noteworthy, however, that although improvement occurred while the patient was under treatment, the improvement was not maintained when the patient left hospital. Periodic estimations of the basal metabolic rate were valuable in the surgery of exophthalmic goitre, particularly when the two stage method was used. By this means the surgeon was able to gauge how much of the gland had to be removed. He was inclined to be sceptical in regard to pituitary conditions and the basal metabolic rate.

Dr. J. Bostock asked how much the apparatus cost and how long it took to carry out the estimation and to make the calculation. He wished to know whether the method was of use in mental diseases and whether any work had been done on general paralysis of the insane. He wondered whether any less cumbersome apparatus could be used, as there were practical difficulties in applying it to an estimation of the basal metabolism of restless and excitable patients.

Dr. B. B. Wade thanked Dr. Hansman for his clear and explicit paper. He referred briefly to pituitary defects. In achondroplasia the fingers were short and stubby, the second, third and fourth digits being the same length. In infantilism some obesity was present and the phalanges were long and tapering. Excessive adipose tissue was present in individuals of the "Fatty" Arbuckle type and their weight was much increased. He had never seen good results from use of anterior pituitary extract either alone or with thyreoid extract. Perhaps whole gland extract should have been given. Better results were obtained with thyreoid in the treatment of obesity when the extract was given up to the point of intolerance. He asked Dr. Hansman what doses he used and whether he used whole gland extract or only that of the anterior lobe. He also asked whether any degree of difference was found in the use of thyreoid extract in infantilism and in mere obesity.

Dr. Hansman, in reply, said that he wished to thank those present for the manner in which they had received his paper. In reply to Dr. Wardlaw he agreed that the normal standards for Australians should be determined. Such standards would be established for certain age periods and the residents at the Royal Prince Alfred Hospital would be used as subjects. He thought that

some opportunity should be afforded for estimating the basal metabolic rate of Australian aborigines. They constituted morphologically one of the oldest human races extant and it was important to discover whether the basal metabolic requirements had changed in the course of evolution.

In reply to Professor Mills and Dr. Blackburn he said that pituitary extract was of greatest use in gross overweight. Not all extracts seemed active. He had found best success with Armour's products. At first a gain in weight often resulted, but when the use of the drug was continued a loss occurred. Failure to obtain results was often due to failure to persist in treatment and to changing treatment. In regard to dosage he gave 0.03 gramme (half a grain) of pituitary extract with 0.015 gramme (a quarter of a grain) of thyreoid extract once a day for a fortnight and gradually increased the dose at fortnightly and then weekly intervals. Pituitary extract combined with thyreoid was of use in migraine, especially with patients of the sallow type who manifested evidence of a lowered metabolism. Cures had frequently resulted in very severe cases.

In reply to Dr. Corlette he said that adiposity did not appear to be the cause of the difference in the metabolism of the sexes as the difference was manifest in all types of females and at all ages.

In reply to Dr. Diethelm he said that apart from the conditions discussed in the paper there was no definite evidence that any other diseases *per se* resulted in an alteration in the basal metabolic rate. He quite agreed that it was difficult to believe that a total of thirteen thousand calories in a day could be given to a delirious patient.

In reply to Mr. Poate Dr. Hansman said that in acute cases the patient might be very ill and the metabolic rate need not be very high, but in chronic cases the metabolism might have risen slowly to quite a high level without the patient feeling or appearing ill.

In reply to Dr. Bostock Dr. Hansman said that the apparatus cost sixty to seventy pounds landed in Sydney. It was not fool proof, but errors could always be detected. An estimation generally took about one hour and the work could be learned in one month if the worker was used to laboratory methods. If the patient struggled of course it was not an estimation of basal metabolism. The basal metabolic rate in mental conditions presented no constant variation.

In reply to Dr. Wade he said that the different types of pituitary diseases seemed to depend on the amount of change in the different lobes of the pituitary and in the other endocrine glands. The maximum dose that he had given was 1.8 gramme (thirty grains) of pituitary extract and 1.5 gramme (twenty-five grains) of thyreoid extract in a day.

A MEETING OF THE OBSTETRICAL AND GYNÆCOLOGICAL SECTION OF THE VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Melbourne Hospital on May 1, 1925, DR. T. MURPHY, the President, in the chair.

The Treatment of Salpingitis.

DR. R. H. MORRISON read a paper on "The Radical and Conservative Treatment of Salpingitis" (see page 225).

DR. A. N. MCARTHUR said that the tubes could be dealt with in greater safety after the acute symptoms had abated. The penalty was probably much greater mutilation to tubes. It used to be said by surgeons that if immediate operation were needed for acute appendicitis, why not for acute salpingitis. The infection in an appendicitis, however, was within the closed appendix and had to burst it to infect the peritoneum; in the early stage of salpingitis the tubes were open and infection into the peritoneum took place as a result of a drip. He would like to remind the members of the extraordinary potential immunity of the pelvic peritoneum in the presence of infection. It was always safe to deal with tubes later, when their infected open fimbriated ends had become agglutinated to themselves or to the peritoneum, producing what he called "auto-delimitation of disease." These derelict tubes could be drained or removed according to the indications. If dealt with in the acute stage, when the symptoms were those of an acute affection of the abdomen, there always existed a possibility of producing a fulminating peritonitis. He had dealt with tubes in this way. He preferred in those acute conditions to milk the pus from the tubes and not to slit them open, because any incision produced a raw surface for further infection and adhesion. He had seldom had the hardihood to close the abdomen after milking the tubes and dropping them back into the cavity.

He resorted to a two-way drainage, abdominal and vaginal for twenty-four or forty-eight hours. To assist in a conservative endeavour to save tubes, he would like to record the extraordinary recuperative ability of tubes. He had once performed colpotomy and drained both tubes of excessive, offensive pus and the patient had done so well that she had been recommended to go home and have nothing further done. Eighteen months afterwards she had been delivered of a normal healthy child. Some tubes, however, did not recover. He had performed double salpingostomy for closed tubes. The patient later had had an ectopic gestation, one first on one side then on the other. On both occasions surgical removal had been undertaken.

DR. ALLEN ROBERTSON said that it was very evident that the experience of all surgeons after many years of practice seemed to bring them into touch with the same types of salpingitis, varying from the mildest pathological condition to that of severe suppurative forms. In those cases calling for drainage of Douglas's pouch *per vaginam*, he did not agree that there was any difficulty. He placed a retaining tube (Reed's) into Douglas's pouch and gauze at either side of it, removing the gauze after forty-eight hours and the tube a day or two later. Where there was pain in the lower part of the abdomen, with a rise in temperature and pulse rate and tenderness *per vaginam*, but no definite pathological condition to be determined, he had had in some cases success by rest, depletives, douching and tamponading with "Ichthyol" and glycerine. In others he was pleased at having drained *per vaginam*, though only serous, slightly hæmorrhagic discharge had been obtained.

When abdominal section was needed he had had to remove one appendage and even the whole of the pelvic organs. Age was a guide to determine whether the uterus and one ovary be left to preserve the menstrual cycle, in which case he would transplant the ovary.

In two women he had reestablished menstruation in this way. In older patients the pelvis should be cleared out. After drainage had been carried out any subsequent operation should be done early, otherwise very firm adhesions made it much more difficult.

DR. E. A. SPOWERS was very pessimistic as regards any treatment of gonorrhœal salpingitis short of salpingectomy. He regarded this tubal disease as fatal to any further functioning of the tubes. In his experience, salpingostomy had been a failure. Twice he had seen a hydrosalpinx and once a hæmatosalpinx follow this operation. There was also the fear of an extrauterine pregnancy, as quoted by other speakers. In regard to salpingitis following septic infection he advocated conservative treatment as far as possible. Here the outlook in so far as recovery of function of the tubes was concerned, was very hopeful; many patients made a complete recovery, as evidenced by subsequent normal pregnancies.

DR. EDWARD WHITE said that to perform salpingectomy in acute salpingitis was running a grave risk of a fatal ending or at least of giving the patient a stormy convalescence. Such acute conditions yielded better to conservative treatment. Rarely a posterior colpotomy was necessary, which released some toxic serum and helped the patient through the acute stage. It was risky and unnecessary to try to rupture pus tubes through the posterior fornix. After a definite interval and provided that the indications were clear, the diseased tubes could be removed. As regards subtotal hysterectomy he found that after double salpingectomy and separation of adhesions the serous surface of the uterus was often raw

and bleeding. He then advocated hysterectomy so as to obtain better peritonization of the pelvis with less adhesions.

In salpingectomy the tube should always be completely excised at the uterine end. Some years previously he had been associated with the late Dr. Rothwell Adam in an interesting case of ruptured extrauterine pregnancy in which the tube was removed. A year later this patient reappeared with another ectopic pregnancy in the stump of that tube. Dr. White emphasized conservative treatment of salpingitis following a puerperal septic infection. He cited a typical acute case with grossly diseased appendages. The patient recovered and a pelvic examination months later revealed apparently normal tubes. He agreed with Dr. Spowers that in gonorrhœal salpingitis the tubes were hopeless and if the indications were present, they should be completely removed.

Salpingostomy was disappointing, partly because the portion of the tube left behind was probably not patent. He offered the suggestion that insufflation of the tube might be attempted after the diseased portion had been excised.

Dr. H. Jacobs said that bearing on the prognosis of salpingitis treated conservatively an interesting observation had been deduced by him when investigating sterility by Rubin's method of transuterine insufflation. In a number of women in whom both tubes were occluded, the only cause suggested from the history was an attack of so-called "appendicitis" before marriage. No operation had been performed and he concluded that the condition was in reality a salpingitis.

Dr. R. Fowler gave a further report upon a case of acute gonorrhœal salpingitis. Some months previously he had operated upon the patient during the acute stage and had opened both tubes from end to end, as advocated by Alex. Bourne. Recently he had found tubal occlusion with Rubin's insufflation even up to 200 millimetres of mercury, an almost certain indication of sterility.

Dr. Spowers described a case of extrauterine pregnancy simulating acute appendicitis. He also showed a specimen of an ovarian cystoma, the size of an orange, of only four months' duration.

Dr. P. Brett described a case of ruptured interstitial ectopic gestation, requiring subtotal hysterectomy. The specimen was shown.

Dr. T. Murphy (the President) said that as the hour was late, he would content himself by congratulating Dr. Morrison on his excellent paper and the speakers on an interesting discussion.

A meeting of the Victorian Branch of the British Medical Association was held in conjunction with the Melbourne Gynæcological and Obstetrical Society at the Women's Hospital, Carlton, on July 3, 1925. The meeting was held in the new Obstetrical Building and took the form of a series of clinical demonstrations by the members of the Honorary Staff of the Women's Hospital.

Placenta Prævia.

On behalf of Dr. A. M. Wilson, Dr. R. N. Wawn presented three patients who had exhibited *antepartum* hæmorrhage due to malposition of the placenta and discussed the treatment adopted in each case.

The first patient provided an example of central *placenta prævia* and in her case the child had been delivered by Cæsarean section on the completion of eight months of her term. Mother and child had done very well.

In the case of the second patient vaginal examination had indicated lateral *placenta prævia*, breech presentation and dilatation of the *os uteri* to a diameter of two to three centimetres. A leg had been brought down, the bleeding controlled by the half breech and delivery left to Nature.

Marginal *placenta prævia* had been present in the third patient. In her case the *os* had been dilated manually, the membranes ruptured and bipolar version performed. Delivery had then effected naturally and in a satisfactory manner.

Toxæmias of Pregnancy.

Dr. J. Leon Jona presented three patients in whom were illustrated certain aspects of the toxæmias of pregnancy.

The first was a *primipara* who had suffered from pernicious vomiting of pregnancy; large quantities of blood had been present in the vomitus. After due consideration had been given to gastric ulcer and conditions apart from pregnancy in the diagnosis the view taken of this patient had been that she was affected by a toxæmia of pregnancy of sufficient severity to cause gastrostaxis. Eliminative treatment having failed, abortion had been induced. Dr. Jona stated that it was his experience that if such patients were allowed to continue in pregnancy, they were exposed to serious risk of death.

The second patient was a *multipara* in her seventh pregnancy. All her previous confinements had been normal except the first when she gave birth to a still-born, premature (seven months) child. She had been admitted to hospital by reason of blindness and convulsions when she was seven and one half months pregnant. She had been given morphine and the usual eliminative treatment and had had no more fits. Nine days later she had given birth to a macerated fœtus, after which she made an uninterrupted recovery. It appeared that apart from the treatment the death of the fœtus determined the cessation of the fits. The patient also soon recovered her sight and the albuminuria disappeared by the ninth day after the birth of the fœtus, points which, considered with the fact that she had had no kidney symptoms in any of her previous pregnancies, indicated that the condition was one of eclampsia. The experience in the case of this woman indicated that in eclampsia, if the fits and other symptoms disappeared, there was no indication for the induction of labour.

Dr. Jona's third patient was a *primipara* who had been admitted with the headache, dimness of vision and scanty urine indicative of the preeclamptic state. Purgation, lavage of the colon and other eliminative measures had been adopted. By the tenth day after the patient's admission the daily quantity of urine had greatly improved, the amount of albumin had diminished and the acetone which was formerly present in the urine, had disappeared. On the following day convulsions had supervened and five fits, varying in duration from twenty-five to thirty-five seconds, occurred in the course of twenty-four hours. The systolic blood pressure at this time had been 130 millimetres of mercury.

The convulsions had ceased temporarily, but four days later they had recurred with the onset of labour, six fits of duration from forty to sixty seconds preceding the birth of the child and two of thirty and eighty seconds occurring subsequently. Her recovery from this point had been uneventful.

The course of events in this woman illustrated the necessity for careful watching even when the indications were that the patient was improving.

Contracted Pelvis: Pelvimetry.

Dr. J. S. Green presented three patients in connexion with whom he discussed contraction of the pelvis in its transverse diameters.

The first patient, a woman of thirty-eight years of age, was in her fourth pregnancy, the first three having terminated in difficult labour and still-born children. The pelvic measurements had been ascertained to be as follows: Interspinous diameter, twenty-five centimetres; intercristal, 26.25 centimetres; external conjugate, twenty centimetres; transverse diameter of the pelvic outlet, 7.5 centimetres.

The sacral promontory could not be felt by vaginal examination. Dr. Green pointed out that there was no contraction of the pelvic brim, but very definite outlet contraction. Cæsarean section was proposed as the method of delivery.

Dr. Green's second patient was a woman, aged twenty-four years, whose first child had been born naturally

after induction of premature labour; the baby had been born alive and weighed 3.2 kilograms. The mother was pregnant for the second time and the figures obtained by pelvimetry were: Interspinous diameter, 22.5 centimetres; intercristal, twenty-five centimetres; external conjugate, eighteen centimetres; true conjugate (Skutsch), ten centimetres; transverse diameter of pelvic brim, 10.6 centimetres. Measurements at the outlet showed the transverse diameter as 8.1 and the posterior sagittal as 8.7 centimetres.

This patient was presented as furnishing an example of the "small round pelvis" in which there was a greater degree of contraction in the transverse than in the antero-posterior diameters. Labour had been induced at the end of the thirty-seventh week of gestation when a live child weighing 3.0 kilograms (six and threequarter pounds) was born.

Contraction of the transverse diameter of the brim associated with a degree of contraction of the pelvic outlet was illustrated in the case of Dr. Green's third patient. She was twenty-eight years of age and was in the thirty-second week of pregnancy with her third child. Her interspinous diameter was 26.25 and intercristal 29.3 centimetres. The measurement of the external conjugate diameter could not be satisfactorily determined owing to the presence of deformity consequent on ankylosis of the lumbo-sacral spine. At the outlet the transverse diameter and the posterior sagittal each measured 8.7 centimetres. It was proposed to examine this patient when she had completed thirty-seven weeks' gestation, with a view to the induction of labour if practicable, but it was considered that she would probably require Cæsarean section.

Mitral Stenosis and Pregnancy.

Dr. H. S. Jacobs discussed the case of a woman, aged forty-one years, who had first come under his observation in the antenatal clinic of the Women's Hospital; at that time pregnancy had been twenty-eight to thirty weeks advanced. Five children had already been born to this patient.

It was elicited by inquiry that she had suffered from rheumatic fever at the age of thirteen years and that seven and a half years previously she had been affected by a left sided hemiplegia. There was no paralysis and some impairment of cutaneous sensation represented the residuum of the cerebral lesion. Six and a half years previously, the patient being then two months pregnant, therapeutic abortion had been performed on account of cardiac disease.

Examination of the heart showed that the apex beat was not displaced, but presystolic; systolic and diastolic murmurs were audible. Compensation had been at this time fairly well maintained and the patient was desirous of a living child. She had been kept under observation in the antenatal clinic, but five weeks after her first attendance at the hospital it had been necessary to admit her on account of cardiac failure as indicated by dyspnœa, cough and hæmoptysis. Other serious features were albuminuria and a mild degree of albuminuric retinitis; the systolic blood pressure had been 160 millimetres of mercury.

After consultation with Dr. M. D. Silberberg it had been decided to adopt measures for the improvement of the cardiac condition with a view to the induction of labour at the thirty-sixth week of pregnancy. One week later, however, the patient had become affected by acute pulmonary œdema and it had been decided to induce labour at once. Induction had been carried out by the insertion of bougies after the method of Krause, no anæsthetic being administered. Labour had not commenced until seventy-two hours later; it had been very short and had terminated naturally in the birth of a living child weighing 2.2 kilograms (four and threequarter pounds). Morphine 0.01 gramme (one-sixth of a grain) and hyoscine 0.0004 gramme (one hundred and fiftieth of a grain) had been given early in the first stage of labour.

Mother and baby had been sufficiently well to be discharged from hospital on the fourteenth day of the puerperium. The infant when six weeks old weighed 2.8 kilograms (six pounds) and the mother's condition continued to improve.

Obliquely Contracted Pelvis.

Dr. Jacob's second patient was a woman, aged twenty-seven years, pregnant with her second child. She had first been seen in the antenatal clinic and term had been calculated to be at the end of May or early in June. By inquiry it had been learned that thirteen months previously the patient being then eight months, induction of labour had been performed. After a protracted labour of eight days a child weighing 2.0 kilograms (four and a half pounds) had been born dead.

On examination in the antenatal clinic it had been found that the fœtal head was floating freely above the brim of the pelvis and could not be manipulated into the pelvis. The pelvic measurements had been determined as follow: Interspinous diameter, twenty-two centimetres; intercristal, twenty-four centimetres; external conjugate, seventeen centimetres; bitrochanteric diameter, twenty-five centimetres.

In the course of a careful pelvic examination under anæsthesia it had been found that the diagonal conjugate diameter was 11.75 centimetres, the *conjugata vera* being 9.75 centimetres. On tracing the outline of the brim of the pelvis it had been found that while the *linea terminalis* on the right side of the pelvis curved in a normal manner, that on the left side appeared much shorter and seemed to pass from pubis to sacrum in a very direct way.

Advantage had been taken of the anæsthesia to repeat the attempts to get the fœtal head to enter the brim of the pelvis, the method of Munro Kerr being adopted, but without success.

An obliquely contracted pelvis had been suspected, but no facts could be elicited regarding delay in walking in childhood or any trauma or disease suffered by the mother. She walked and carried herself quite normally. Certain further external measurements suggested by Naegele as a test for asymmetry had been taken, but they proved of no assistance.

Through the kindness of Dr. Love of the Alfred Hospital radiograms had been very carefully taken in various positions, particular attention being paid to the placing of the patient. By this means the diagnosis of pelvic asymmetry had been confirmed, the radiograms showing the following points of interest. (i.) The sacral promontory and the *symphysis pubis* were not in a direct antero-posterior line, the promontory being displaced to the left. (ii.) The *linea terminalis* on the right side curved almost normally towards the sacro-iliac synchondrosis, being very slightly flattened antero-posteriorly, while that on the left side was definitely shorter and flattened laterally; the left side of the pelvis appeared almost useless from an obstetric point of view. (iii.) A decided difference was found in the levels of the heads of the femora, that on the left side being the more cranially situated. (iv.) A slight compensatory lumbar scoliosis was found.

Cæsarean section had been performed as the operation of election and a living child, weighing 2.7 kilograms (six pounds) had been delivered. Mother and infant had left hospital well nineteen days later.

Pregnancy Complicated by Diabetes Mellitus.

Dr. Jacobs discussed in detail the case of a pregnant woman affected with diabetes. He indicated that as instances of true diabetes complicating pregnancy were rare, he proposed to make the case of this patient the subject of a later and more detailed communication.

Transuterine Insufflation of the Fallopian Tubes.

Dr. Jacobs also demonstrated the apparatus and technique employed in Rubin's method of transuterine insufflation of the Fallopian tubes in order to investigate the patency or occlusion of the tubes in dealing with sterility. He carried out the procedure in a woman whose tubes were found to be patent.

He emphasized the necessity of determining the patency of the Fallopian tubes before any operative measures were undertaken in the treatment of sterility. It would be unscientific to undertake dilatation of the cervix, curettage, intubation and operative replacement of a symptomless retroverted uterus, if the tubes were occluded.

In proper hands the procedure was easy and safe and could be carried out in the consulting room with little or no discomfort to the patient and with no risk of complications or sequelæ.

Dr. Jacobs indicated the cardinal signs upon which a diagnosis of patency of the tubes was based.

Puerperal Sepsis.

Dr R. H. Morrison discussed the subject of puerperal sepsis in the aspects exhibited by several patients whose clinical histories he presented in detail.

Severe Birth Injury.

Dr. Allen Robertson presented a woman, aged forty years, upon whom he had operated in order to repair a serious laceration of the base of the bladder occasioned by her last confinement. Dystocia had resulted from an impacted breech presentation of a large child which was subsequently found to weigh 6.6 kilograms, (fourteen pounds); the infant which was the sixth child, had been still-born. The mother had experienced no particular difficulty with any of the other five.

The first operation had been carried out in February, 1925, and had consisted in suprapubic cystotomy, designed to divert the drainage of urine from the tissues it was necessary to repair.

At the second operation in March, 1925, the *symphisis pubis* had been divided as a preliminary to the dissection of the basal portion of the bladder away from the pubic bone; the base of the bladder had then been closed and the area covered by means of a flap brought from the *labium majus* of the right side.

Dr. Robertson detailed the steps of the plastic operation he had performed, illustrating his demonstration by means of blackboard sketches.

On April 28, 1925, it had been found necessary to insert additional sutures for the closure of the urinary fistula and at this time a self-retaining catheter had been inserted in the urethra. The suprapubic wound had been allowed to close.

At the time of the meeting the patient was getting about quite comfortably and could get three or four hours sleep without having to change her dressings. It was proposed to examine her again in twelve months' time in order to see if anything further might be done.

Ovarian Cyst.

Dr. B. Milne Sutherland showed a specimen of an enormous ovarian cyst which he had removed by operation on the day before the meeting. The patient stated that she had noticed abdominal enlargement for four weeks only and that she had been led to seek advice by a sharp attack of abdominal pain which occurred a few days prior to her first attendance at the hospital.

On physical examination the abdomen had been seen to be very large and tense and the presence of a large spherical tumour which extended almost to the xiphisternum and yielded a fluid thrill, had been apparent At operation the cyst shown was removed and from it had been evacuated 5.4 litres of opaque and discoloured fluid. Dr. Sutherland drew attention to the presence of a number of very hard nodules in the wall of the cyst; he suspected malignant disease from the fact that at the site of these nodules the cyst was adherent to the peritoneum and appeared to be infiltrating the serous membrane, but he had not as yet received a pathological report.

Pseudo-Myxoma Peritonei.

Dr. W. G. Cuscaden discussed the case of a woman, aged twenty-eight years, whose clinical history had suggested the probability of subacute appendicitis and possible abscess formation. Operation had been performed in the first instance through an incision in the appendiceal region and immediately the peritoneal cavity was opened a large amount of myxomatous material had oozed through the wound. The inspection afforded by an incision in the middle line had disclosed a condition in which the caecum and appendix, ascending colon and portions of the transverse and sigmoid colons were welded into a mass by pseudo-myxomatous tissue. No pathological change had been apparent in the ovary of either side.

Dr. Cuscaden remarked that the pathological process appeared to have originated in the appendix; pseudo-myxoma of the vermiform appendix was a very rare occurrence in females and he had been able to find records of two instances only, as against seventeen in males. The patient had received two applications of deep X ray therapy.

Apparatus for Testing Patency of Fallopian Tubes.

Dr. Cuscaden exhibited a device constructed on the principle of the "Sparklet" seltzogene for regulating the pressure of gas in carrying out the Rubin technique for investigating patency of the Fallopian tubes. By the adoption of this device the necessary apparatus was rendered portable.

Interstitial Ectopic Gestation: Rupture of Gestation Sac: Subtotal Hysterectomy.

Dr. Percy Brett discussed the history of a woman, aged thirty-five years, who had suffered from ectopic gestation in the interstitial or intrauterine portion of the Fallopian tube.

When she first came to the Women's Hospital in February, 1925, the patient had complained of severe pain in the back and in the lower portion of the abdomen. The pain had troubled her for three and a half weeks and had been attended by slight loss of blood by the vagina for two weeks. The pain had originated in the lower portion of the abdomen on the right side and was of sharp and stabbing character. It had been described by the patient as radiating to the right thigh and as having been succeeded by pain of a more constant character in the lower portion of the abdomen generally.

On February 2, 1925, abdominal pain, bachache, vaginal hæmorrhage and bearing down sensation persisting, the patient had been admitted to hospital as likely to suffer from an abortion.

Vaginal examination at this time had shown that the uterus was of size consistent with pregnancy of three months' duration, that the cervix was closed and that the uterine fundus was in an anterior position; palpation of the vaginal fornices had revealed no abnormality.

After five days of sedative treatment vaginal hæmorrhage had ceased, the patient had experienced much relief from pain and as she seemed very well she had been discharged from the hospital.

Eight days later it had been necessary to arrange for her readmission on account of recurrence of pain and hæmorrhage; at this time she was acutely ill, had been vomiting at intervals for the previous two days and had been in a state of collapse.

Dr. Brett had operated as a matter of urgency. Much free blood stained fluid and clot had been found in the peritoneal cavity, associated with a fœtus upwards of three months old which was lying in the general abdominal cavity. At the uterine extremity of the right Fallopian tube he had found a ruptured gestation sac, the deep part of which was imbedded in the uterine wall—an interstitial ectopic gestation. The uterine wall had been much damaged and weakened. Subtotal hysterectomy had been performed and the patient had made an uninterrupted recovery.

The specimen as removed at the operation was exhibited by Dr. Brett.

Imperforate Hymen: Hæmatocolpos.

Dr. Arthur Sherwin demonstrated the physical features of hæmatocolpos in a girl, aged fourteen years and nine months. The patient who was very well developed, had

never menstruated nor had she experienced any abdominal or pelvic discomfort until a few weeks previously. She had then complained of pain in the back; this had persisted. Twenty-four hours prior to her admission to the Women's Hospital the patient had been compelled to seek medical assistance on account of inability to urinate and she had been relieved of approximately nine hundred cubic centimetres of urine by passage of a catheter. She had passed a normal quantity of urine during the succeeding twenty-four hours, but had been catheterized immediately prior to the demonstration.

On examination of the abdomen the presence of a rounded tumour, extending almost to the umbilicus and lying slightly to the right of the mid-line, was evident. The swelling was dull to percussion and though slightly movable from side to side, could not be displaced in an upward direction.

Vaginal examination revealed an imperforate hymen or septum stretching across the vaginal orifice, the urethra being the only opening present in the vestibule. The septum was tense and bulging and was of bluish appearance which was no doubt due to the presence of retained menstrual products.

The bladder having been emptied, diagnosis rested on the history of amenorrhœa, the bulging membrane at the vaginal opening, the situation of the abdominal tumour and the fact that it could not be displaced upwards as could an ovarian tumour of similar size.

Apparatus in the Treatment of Sterility.

Dr. Sherwin demonstrated a variety of rubber, glass, metal and vulcanite stems designed for intubation of the uterus in the treatment of sterility dependent upon "acute anteflexion of the uterus and stenosis of the cervical canal."

As illustrative of the utility of the Meyer's or Duke's intrauterine stem he quoted a series of fourteen women in whom sterility apparently was connected with anteflexion of the uterus and stenosis of the cervical canal and in the treatment of whom one or other of these instruments had been employed. In the fourteen sterile marriages the periods of sterility ranged from two to eight years. After intubation of the uterus pregnancy had occurred in seven of the women within periods varying from two to nine months and in one after two years. Another had suffered a miscarriage early in the course of pregnancy after ten months had elapsed since the intubation. As none of the remaining five had reported pregnancy it was assumed that the procedure of intubation had not brought about the desired result, but in one or two instances considerable relief of dysmenorrhœa had ensued.

Endocrine (Thyreoid) Therapy and Pregnancy.

Dr. N. L. Speirs discussed the case of a woman, aged thirty-five years, who had apparently suffered a premature menopause in that menstruation had ceased at the age of twenty-five. The cessation of the periods had not apparently been associated with any disturbance of general health, but some years later the patient had experienced a number of acute attacks of abdominal pain and vomiting which were attributed to appendicitis. She first had come under the observation of Dr. Speirs three years previously and in July, 1922, he had removed her appendix. At the operation which was performed through a mid-line incision, it had been noted that the uterus was retroposed and with the exception of a small cyst in the right ovary the pelvic organs appeared healthy. The contents of the ovarian cyst had been evacuated.

After the operation the oral administration of thyreoid extract in doses of 0.006 gramme (one tenth of a grain) three times daily had been commenced and the menstrual flow which lasted four days, had appeared in November, 1922. Menstruation of four days had also occurred in the following month and after this the thyreoid medication had been discontinued. There had been no resumption of menstruation until thyreoid extract was again administered and under its influence menstruation had recommenced and occurred at intervals varying from five to seven weeks until December 27, 1924. The patient had reported on February 5, 1925, when she was found to be in the early stage of pregnancy. Pregnancy had developed in a normal manner.

Dr. Speirs said that he based the thyreoid therapy on the view that the occurrence of menstruation was dependent upon the functional efficiency of the ovary as regards its internal secretion; small doses of thyreoid extract had been given with the object of stimulating the ovarian internal secretion.

Abruptio Placentæ.

Dr. R. N. Wawn exhibited an interesting specimen which he had obtained under the following circumstances.

The patient, a *primipara*, seven months pregnant, had experienced a severe and painless hæmorrhage at 11 p.m. on a certain evening. Dr. Wawn had seen her in consultation with her medical attendant at 3 o'clock on the following morning. She had then been very much exsanguinated and had exhibited all the signs of severe shock and hæmorrhage. By vaginal examination it had been determined that the *os uteri* was dilated to a degree sufficient to admit one finger, but the cervical canal still remained. It had been possible to rotate the contents of the uterus within the uterine cavity.

Cæsarean section had been performed and the uterine contents removed intact. A complete specimen had thereby been secured of a seven months' fœtus within the amniotic sac to which the placenta was attached.

Carcinoma of Cervix: Radium Therapy.

Dr. C. E. Dennis showed a woman whom he had treated for malignant disease of the cervix. A married woman, thirty-two years of age, she had never been pregnant. Menstruation had occurred regularly every thirty days and was of three to six days' duration. An operation for salpingitis had been performed ten years previously.

On January 10, 1925, the patient had reported that for the preceding nine or ten weeks she had been troubled by a persistent dull heavy feeling which she located just below the umbilicus; there had also been offensive vaginal discharge, at first watery, but later yellowish and blood stained.

The cervix which was large had presented much thickening and irregularity of surface, the thickening extending into the vaginal vault on both sides. The fundus of the uterus had been freely movable. On January 16, 1925, the surface had been scraped and cauterized and an excised piece sent for pathological examination. Dr. Mollison had reported squamous carcinoma.

On February 5, 1925, 100 milligrammes of radium bromide, filtered through one millimetre of brass and 0.5 millimetre of silver had been applied against the cervix for forty hours.

When the patient was examined on June 10, 1925, there had been no sign of the growth, the cervix being apparently normal and the uterus freely movable. All vaginal hæmorrhage and discharge had ceased. At this time another application of radium lasting thirty hours had been given.

Pathological Specimens.

Dr. C. H. Mollison demonstrated from a number of excellently mounted pathological specimens.

Chorioepithelioma was illustrated by two examples. In the first instance pregnancy had terminated in an hydatidiform mole on November 11, 1923, hysterectomy for the extirpation of a chorioepithelioma following in May, 1924. In the case of the patient from whom the second specimen was obtained, abortion had occurred in August, 1923. The woman had been admitted to the Women's Hospital in a state of coma in the following November. A massive local growth of chorioepithelioma had been found at the autopsy together with secondary metastatic deposits in the brain. At the time of abortion there had been no evidence of mole formation.

Dr. Mollison showed a number of ovarian cysts, included among which were examples of papillary carcinoma of the ovary, papilliferous non-malignant cyst and dermoid cysts.

One particular cyst showed a remarkable collection of "butter balls," the contained sebaceous material having become moulded into numerous rounded masses suggestive of this description.

Two striking specimens among the large number displayed were one in which pregnancy was seen to have occurred in the rudimentary horn of a unicornuate uterus and another which showed complete inversion of the uterus at full term.

Laceration of the Perineum.

Dr. E. R. White showed a patient, aged thirty years, who was suffering from complete laceration of the perineum. The patient had borne two children, the younger of whom was one year old. The patient's menstrual history was normal. She complained that at the last confinement she had been badly torn. She had had complete loss of control of the bowels for ten days and at the time of demonstration had only incomplete control. On examination it was seen that the perineum was completely ruptured to the anus and that the recto-vaginal septum was merely a thin partition of scar tissue. The operation of complete perineorrhaphy was to be carried out on the day following the meeting.

Relaxed Vaginal Outlet.

Dr. White's second patient was aged forty-three years. She had borne five children and the youngest was nine years of age. The patient complained of pain in the right side, of backache and of a feeling of bearing down. On examination a relaxed vaginal outlet had been found, the uterus had been anteverted, but low in the pelvis. Tenderness had been present over McBurney's point and this had been suggestive of appendicitis. She had been operated on eleven days prior to the meeting and incomplete perineorrhaphy, appendicectomy and Baldy-Webster's sling operation had been performed. The last named operation had been done on account of the stoutness of the patient instead of a modified Gilliam operation which Dr. White usually performed when doing intraperitoneal shortening of the round ligaments. The operation of perineorrhaphy had been originated at the Women's Hospital by Dr. George Horne twenty-five or more years previously. Number two chromacized cat gut only was used throughout and was buried, the same procedure was adopted with the submucous and subcuticular sutures. Dr. White also described the preparation of the patient before operation and the after treatment.

Carcinoma of the Cervix after Subtotal Hysterectomy.

Dr. White also showed a woman, aged forty-nine years, who had been subjected to the operation of subtotal hysterectomy fourteen years previously. The patient had one child sixteen years old. For ten weeks she had complained of an offensive blood stained discharge. No loss of weight had occurred. On examination the cervix was ulcerated, it was found to be excavated and a purulent offensive discharge was present. The cervix was fairly movable in the pelvis. The serum had not reacted to the Wassermann test. Dr. White said that an operation for total removal of the remainder of the uterus was advised. He proposed to do this by the abdominal route, partly on account of the narrowness of the vagina. Radium would then be applied to the vaginal vault three weeks after the operation. He held that this patient's history demonstrated the fact that it was wiser to do a panhysterectomy rather than a subtotal hysterectomy, when the cervix was lacerated and unhealthy and thus predisposed to cancer.

Epithelioma of the Vulva.

Dr. White's fourth patient was a woman, aged fifty-three years, who had had five children. Her menopause had taken place ten years previously. The patient had noticed a small pimple on the left side of the vulva five months previously. This had rapidly increased in size. Two months previously the growth had ulcerated and become very tender. She had been operated on four weeks before the meeting, the glands of the groin had been dissected out and then the vulva had been totally excised. Dr. White displayed the specimen. It consisted of a large growth ulcerating between the left *labium minus* and the *labium majus*. The glands were about to become infiltrated. X ray therapy would be undertaken at once. The patient's serum had not reacted to the Wassermann test.

Knotting of the Umbilical Cord.

Dr. White also showed an umbilical cord which was tied in a knot. This had been noted while a normal delivery was being effected by the natural forces. Had the knot been any tighter it would have affected the fœtal circulation. The cord was eighty centimetres (thirty-two inches) long; the average length of an umbilical cord was fifty centimetres (twenty inches).

Dr. White described a recent confinement in which the patient had been delivered of a still born, macerated fœtus at term. The umbilical cord had been twisted three times round the neck and twice round the chest like a spica bandage. Intrauterine death of the fœtus had occurred five days before delivery.

NOMINATIONS AND ELECTIONS.

The undermentioned have been elected members of the Queensland Branch of the British Medical Association:

Dart, John Leslie, M.B., 1925 (Univ. Sydney), Sandgate.
Haynes, Raymond James, M.B., 1915 (Univ. Sydney), Brisbane.
Bonney, Henry Claude, M.B., Ch.B., 1925 (Univ. Aberdeen), Brisbane.
Punch, Thomas Sydney, M.B., Ch.M., 1923 (Univ. Sydney), Lowood.
Lahz, Rudolph Sergius, M.B., Ch.M., 1924 (Univ. Sydney), Goomeri.

Medical Societies.

THE BRISBANE HOSPITAL CLINICAL SOCIETY.

A meeting of the Brisbane Hospital Clinical Society was held at the Brisbane Hospital on June 11, 1925, Dr. A. Gerard Anderson, the President, in the chair.

Ruptured Gastric Ulcer.

Dr. A. G. Anderson showed a man, aged forty-five, who had been admitted four months previously with a history of pain and indigestion for twenty years. At operation a ruptured ulcer had been discovered on the anterior wall of the stomach near the pylorus. The pylorus had been indurated in the region of the perforation. As this condition seemed malignant, a wedge had been resected before oversewing the ulcer. The tissue had been too friable to obtain a good section. Three months later a bismuth meal had revealed definite pyloric obstruction, although the patient felt fairly well. The abdomen had been reopened when practically all the induration was found to have disappeared. He had performed a gastro-enterostomy following Stiles's technique and the patient was in good health at the time of demonstration.

Dr. C. J. Weedon related the history of a man with supposed gastric ulcer who had had a gastro-enterostomy performed two years previously. He had been admitted with all the signs of acute ulcer. There had been no signs of gastric or duodenal ulcer at the operation, but an ulcer at the gastro-enterostomy stoma had ruptured. The man had not recovered. He wondered what would have been the correct procedure to follow if the patient had lived.

Dr. V. McDowall asked what was the patency of the pylorus at the second operation. From the radiograms there should have been very little.

Dr. R. G. Quinn raised the question of drainage after rupture. It was stated in the literature that no drain

was required if the patient were operated upon within six to twelve hours.

Dr. Anderson in reply stated that it seemed foolish not to drain after rupture in view of the varied stomach contents frequently found in the peritoneal cavity. He always used a stab puncture and drained the pelvis with the patient in Fowler's position for three to four days. He was not in favour of doing an immediate gastro-enterostomy. He did not use a drain down to the site of the ulcer unless he found that there might be a leak.

Ankylosis of the Temporo-Mandibular Joint.

Dr. Anderson also showed a girl, aged thirteen, who had an ankylosis of the left temporo-mandibular joint of long standing. She had been in the Hospital for Sick Children where a Murphy operation had been performed on the neck of the mandible. There had been some sepsis at this time. The result was excellent for two years and then fixation had recurred. The lower jaw had been resected by Rochet's method at the angle of the jaw and the gap filled in by the union of the masseter and internal pterygoid muscles. The girl could move her jaw freely at the time of demonstration. There had been no ill effects following the severance of the inferior dental nerve. It was most important in the after treatment to keep the mouth open. This was done by keeping a cork between the teeth for ten days.

Symmetrical Lipomata of the Thighs.

Dr. A. H. Marks, C.B.E., D.S.O., showed a half caste girl who had been admitted to the gynæcological wards suffering from abdominal pain. Apart from this she had large fatty tumours on the outer aspect of both thighs. They had been first noticed three years previously and were slowly increasing. It was proposed to remove them by operation as the patient stated that she could not ride with comfort.

Dr. C. J. Weedon mentioned that Elliot Smith in his book on Tutankhamen referred to the condition of progressive lipodystrophy having been noted among the Pharaohs. There was an illustration in the book representing a king, his queen and their daughters all suffering from this condition.

Torsion of Normal Fallopian Tube.

Dr. R. Marshall Allan, M.C., read the notes of a case of torsion of the Fallopian tube (see page 227).

Correspondence.

CHARLATANISM.

Sir: I have before me a printed card, L—— T——, Chinese herbalist, followed by the address. This card was left by the herbalist in question with a married woman, a relative of mine, during a canvass from door to door in a Melbourne suburb. The Chinese asked this woman if she wished to have any more children. If not he would sell her a drug which would prevent such a possibility. Calling on neighbours he offered a remedy which would procure as many as six children in succession. On hearing of such experiences one is grateful for the efforts of reformers such as Dr. Norman McArthur, who made the subject of charlatanism the basis of his presidential address at the Annual Meeting of the Melbourne Medical Association and also of an article, "Absent Friends," recently appearing in this journal. The astounding fact, however, is that the voice of Dr. McArthur crying in the wilderness is not that of a concerted policy of the British Medical Association to eradicate the quack. Speaking as Minister for Health in Victoria, Dr. Argyle recently announced that the British Medical Association could not attack this problem as the motives of the medical profession might be misconstrued. So that, though we pride ourselves on a working motto whose first aim is the alleviation of the sufferings of humanity, we balance our fine susceptibilities against a heavy mortality which it should be the policy of public health administration to prevent.

As a member of the British Medical Association I would like to ask how one can retain his self esteem in view of the following experiences culled from scores of similar instances which in turn are those of every medical practitioner.

Case I.: A woman was treated for "nerves" by a European herbalist who was given the credit for ultimate recovery. A year later she developed pyelitis and called the herbalist in with confidence born of the earlier experiences. Three weeks later the writer was consulted and found the patient almost moribund. Salines restored the situation sufficiently for the patient to ask to be allowed to die to end her suffering. Her life was saved by a small margin after exhaustive efforts.

Case II.: A man was diagnosed by Drs. S. and D. as inoperable carcinoma of the rectum. The patient then sought a well-known Chinese herbalist who travels all over Victoria. The latter told the patient he was suffering from duodenal ulcer and was curable at £5 a week. After four months during which the patient was taking emetine, bismuth iodide scented with attar of roses, apparently for the "dysentery," the writer was called in to sign the death certificate.

Case III.: A woman visited a European herbalist who diagnoses by the finger nails. He told her that her liver was "awful" and he could cure her in a year for 30s. a week for herbs. During this time she was on no account to have a child, no doubt as this might interfere with regular attendance. A year later she was seen by the writer and being of a type which pregnancy matures, was advised accordingly. The child was later a worthy entrant of the world-wide baby competition. The destinies even of the unborn are thus in the hands of the charlatan.

Case IV.: A young woman in a state of melancholic nervous breakdown applied for treatment, if one visit could cure her. Her relatives said she had not spoken for a month. Many months before she had consulted Mr. K., who promised a cure in a year for £30. This had exhausted all available resources, but as Mr. K. had stated that he had cured three doctors similarly affected they had persisted with him till the case was practically hopeless.

Were it not for the charitable aid our profession extends to the indigent sick one might assume that our motto concerns a mortality where eradication adds fame to our scientific attainments and not a mortality *per se*. In matters medical the layman is relatively a fool and it is our duty to protect him from the quack, as we do an infant from contaminated milk. The onus then is on those who take the responsibility of office in our Association to follow the ideal of the last Congress, namely, prevention by eradicating this menace to public health.

Yours, etc.,

"General Practitioner."

Undated.

ELECTROCUTION.

Sir: In an article by Dr. B. J. M. Harrison in The Medical Journal of Australia, July 25, 1925, mention is made of a death from electric shock from a current of two hundred and fifty volts and the opinion of the Government Medical Officer that it was a unique case.

It may be of interest to point out that a number of deaths have occurred in Sydney from the ordinary supply of two hundred and forty volts. In other parts of the world deaths have occurred from currents of much less strength, one I remember reading from ninety volts.

It must, I think, rarely happen that a current of such low voltage kills a healthy individual. In the examinations carried out by myself there has always been, I think, some affection of the heart, death probably being from shock.

I cannot agree in these cases that it is always possible at *post mortem* examination to determine a site of entry and of exit. I believe that with the most careful examination one will often fail to find either.

Stronger currents at the point of contact will often produce on the skin a peculiar dry crater-like burn. When present I look on this condition as characteristic of contact with an electric current and once at least such a cause of death was correctly diagnosed at the morgue from a burn of this nature when previously there had been no suspicion that the deceased had been working near a live wire.

Yours, etc.,

Sydney, July 30, 1925. ARTHUR PALMER.

SIR: In your issue of the twenty-fifth instant Dr. B. J. M. Harrison refers to the death of a girl at Goulburn through grasping a "live" wire carrying a maximum voltage of two hundred and fifty, which fatality Dr. Williams, the Goulburn Government Medical Officer, considered unique.

If my memory serve me aright, about four years ago a young woman was killed at Saint John's Flats, Darlinghurst, Sydney, through a short circuit in an electric iron. The Coroner's records would verify this, as I remember an inquest being held.

The current in this case was from the City Council supply which in that area is two hundred and forty volts, direct current (the suburban supply being two hundred and forty volts, alternating current). In the hands of those unversed in matters electrical short circuits are prone to occur with irons.

The chief cause of this is that many users place the ironing table too far from the wall plug, thus putting an undue tension on the flex at its point of connexion causing the insulation to wear through. A damp garment handled whilst being ironed and the almost universal concrete laundry floor, contribute to the risk of shock. Users of irons should be instructed to stand on a board or on a rubber mat.

Yours, etc.,

KEVIN BYRNE.

Lakemba, July 27, 1925.

ACUTE POLIOMYELITIS.

SIR: It may be of interest to know that the efforts of municipal health officers of Melbourne (Metropolitan Area) have borne good fruit and though one case is not more than suggestive, still it goes to prove (i.) that the serum supplied from the Commonwealth Laboratories is free from deleterious effects, (ii.) that in this case the results were very gratifying, (iii.) that even though paralysis has supervened, the use of serum is beneficial not only in the prevention of further paralysis, but also in clearing up the existing condition.

There has been a definite drop in the number of cases reported, but this may mislead our general practitioners and prevent from them being alert to diagnose the unrecognized cases of poliomyelitis. Two tragic deaths in the last fortnight are strong evidence that the spread of the disease is still threatening our children and that these probably are the *doyens* of cases occurring without paralytic symptoms.

We have a good supply of serum on hand and three experts who are prepared to aid practitioners in diagnosis and in use of serum.

Yours, etc.,

Melbourne Town Hall. W. KENT HUGHES.

DIATHERMY.

SIR: The interesting notes of J. F. Nelly in your issue of the twenty-fifth instant are very instructive and I can certainly bear out the statements as far as gynæcology is concerned.

In Vienna, London and Chicago especially much attention was given to the treatment of pelvic inflammatory conditions by diathermy. At Saint Bartholomew's Hospital, London, Drs. Cumberbatch and Robinson demonstrated to me a number of cases where gonorrhœal arthritis cleared up by means of intracervical and intraurethral diathermy and in two children gonorrhœal vulvo-vaginitis was similarly cleared up.

These cases improve from two reasons: (i.) The direct application of heat destroys the microorganisms *in situ* and (ii.) the transfused heat greatly increases the lymphatic and blood supply and naturally the phagocytic action is greatly increased. This latter reason accounts for the great improvement manifested in non-gonorrhœal conditions where the microorganisms are less susceptible to heat. A case under treatment has shown marked improvement after one application.

Yours, etc.,

R. F. MATTERS.

Gonville Chambers, North Terrace, Adelaide. July 28, 1925.

Medical Prizes.

BRITISH MEDICAL ASSOCIATION PRIZE FOR MEDICAL STUDENTS.

THE COUNCIL OF THE BRITISH MEDICAL ASSOCIATION proposes to award, in March, 1926, a prize of £10 for the best essay on:—

> "The disabilities that may be directly due to simple fracture (excluding separation of an epiphysis), (*a*) of the femur, (*b*) of the tibia, (*c*) of the fibula, (*d*) of the tibia and fibula (simultaneously injured) and the means to be adopted in the treatment of such cases in order to prevent or minimize these disabilities,"

by a final year medical student in one of the medical schools in the British Empire outside the United Kingdom.

The prize will be awarded to the author of the essay deemed by the examiners to be the best sent in, but if no essay received is considered by the examiners to be deserving of a prize, no prize will be awarded.

The essay, which must not exceed five thousand words, should be clinical in nature and must include concise notes of three cases personally observed by the student.

Essays should be plainly written or typed on foolscap paper (one side only) and must reach the Medical Secretary, British Medical Association House, Tavistock Square, London, W.C.1, not later than January 16, 1926. Each essay must be signed by a pseudonym and be accompanied by a sealed envelope marked on the outside with the pseudonym and containing inside a signed and dated statement that the Essay has been the *bona-fide* work of the competitor and that he or she has not yet passed the final professional examination, together with particulars of his or her name (including full Christian name or names), address and medical school.

The essays received will be adjudicated on by examiners appointed by the Council from among members of the Association not resident in the area. The decision of the Council will be final.

THE WILLIAM MACEWEN MEMORIAL FUND.

WE have received a contribution of two guineas toward the William Macewen Memorial Fund from Dr. J. S. Ormond, of Malvern, Victoria. The fund stands at fifteen guineas.

Proceedings of the Australian Medical Boards.

QUEENSLAND.

THE undermentioned have been registered, under the provisions of *The Medical Act* of 1867, as duly qualified medical practitioners:

Anderson, Hugh Ward, M.B., Ch.M., 1924 (Univ. Sydney), Brisbane General Hospital, Brisbane.

Fox, Otho Parkes, L.R.C.P., L.R.C.S., 1921 (Univ. Edinburgh), L.F.P.S., 1921 (Univ. Glasgow), Charleville

Jobbins, Leslie Thomas, M.B., Ch.M., 1924 (Univ. Sydney), Pomona.

Warner, Beatrice Alice, M.B., B.S., 1921 (Univ. Melbourne), Brisbane.

Morris, John George, M.B., B.S., 1924 (Univ. Melbourne), Mackay Hospital, Mackay.

Mulcahy, James Edward, M.B., B.S., 1924 (Univ. Melbourne), Brisbane.

Books Received.

ANNALS OF THE PICKETT-THOMSON RESEARCH LABORATORY, Volume I.; 1925. London: Baillière, Tindall & Cox. Demy 4to., pp. 84, with illustrations. Price: 17s. net.

BIOLOGICAL MONOGRAPHS AND MANUALS: No. III. STATISTICAL METHODS FOR RESEARCH WORKERS, By R. A. Fisher, M.A.; 1925. Edinburgh and London: Oliver and Boyd. Demy 8vo., pp. 249 with tables. Price 15s. net.

HEALTH AND ENVIRONMENT, by Leonard Hill, F.R.S. and Argyll Campbell, M.D., D.Sc.; 1925. London: Edward Arnold & Company. Demy 8vo., pp. 208 with illustrations. Price: 12s. 6d. net.

OFFICIAL HISTORY OF THE CANADIAN FORCES IN THE GREAT WAR, 1914-1919: THE MEDICAL SERVICES, by Sir Andrew Macphail, Kt., O.B.E., B.A., M.D., C.M., LL.D., M.R.C.S., L.R.C.P., F.R.S.C.; 1925. Ottawa: F. A. Acland. Royal 8vo., pp. 428.

PRACTICAL CHIROPODY, by E. G. V. Runting, F.I.S.Ch.; 1925. London: The Scientific Press, Limited. Crown 8vo., pp. 164. Price: 5s. net.

REPORT OF THE MASSACHUSETTS-HALIFAX HEALTH COMMISSION, October, 1919 to September, 1924. Halifax: Imperial Publishing Company, Limited. Royal 8vo., pp. 74 with illustrations and appendices.

THIRTEENTH ANNUAL REPORT UNITED FRUIT COMPANY: 1924. Cambridge (Massachusetts): Perry-Estabrook Press, Inc. Crown 4to., pp. 247 with illustrations.

Medical Appointments.

Dr. W. H. Collins (B.M.A.) has been appointed Officer of Health to the local board of health for the district of Blyth, South Australia.

* * * *

Dr. T. Auricht (B.M.A.) has been appointed District Health Officer of Echunga, South Australia.

* * * *

Dr. Ivan Bede Jose (B.M.A.) has been appointed an Honorary Assistant Surgeon at the Adelaide Hospital, South Australia.

* * * *

Dr. Leonard Charles Edward Lindon (B.M.A.) has been appointed an Acting Honorary Assistant Surgeon at the Adelaide Hospital, South Australia.

Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429, Strand, London, W.C.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 30 - 34, Elizabeth Street, Sydney.	Australian Natives' Association. Ashfield and District Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham Dispensary. Manchester United Oddfellows' Medical Institute, Elizabeth Street, Sydney. Marrickville United Friendly Societies' Dispensary. North Sydney United Friendly Societies. People's Prudential Benefit Society. Phœnix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association Proprietary, Limited. Mutual National Provident Club. National Provident Association.
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Brisbane United Friendly Society Institute. Stannary Hills Hospital.
SOUTH AUSTRALIAN: Honorary Secretary, 12, North Terrace, Adelaide.	Contract Practice Appointments at Renmark. Contract Practice Appointments in South Australia.
WESTERN AUSTRALIAN: Honorary Secretary, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND (WELLINGTON DIVISION): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

Diary for the Month.

AUG. 25.—New South Wales Branch, B.M.A.: Medical Politics Committee: Organization and Science Committee.
AUG. 27.—New South Wales Branch, B.M.A.: Branch.
AUG. 27.—South Australian Branch, B.M.A.: Branch.
AUG. 28.—Queensland Branch, B.M.A.: Council.
AUG. 31.—Victorian Branch, B.M.A.: Council.
SEP. 1.—Tasmanian Branch, B.M.A.: Council.
SEP. 2.—Victorian Branch, B.M.A.: Branch.
SEP. 2.—Section of Obstetrics and Gynæcology, New South Wales.
SEP. 4.—Queensland Branch, B.M.A.: Branch.
SEP. 8.—Tasmanian Branch, B.M.A.: Branch.
SEP. 8.—New South Wales Branch, B.M.A.: Ethics Committee.
SEP. 9.—New South Wales Branch, B.M.A.: Nomination of Candidates for Federal Committee.
SEP. 10.—Victorian Branch, B.M.A.: Council.
SEP. 10.—South Australian Branch, B.M.A.: Council.
SEP. 10.—New South Wales Branch, B.M.A.: Clinical Meeting.
SEP. 11.—Western Australian Branch, B.M.A.: Council.
SEP. 11.—Queensland Branch, B.M.A.: Council.
SEP. 11.—Central Southern Medical Association, New South Wales.
SEP. 15.—Tasmanian Branch, B.M.A.: Council.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

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